



## 13046 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Cycle: 20, Proposal Category: GO

(Large Program)

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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| <b>Name</b>                  | <b>Institution</b>       | <b>E-Mail</b>     |
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## VISITS

| <b>Visit</b> | <b>Targets used in Visit</b> | <b>Configurations used in Visit</b> | <b>Orbits Used</b> | <b>Last Orbit Planner Run</b> | <b>OP Current with Visit?</b> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| A1           | (1) SN01                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:10.0        | yes                           |
| A2           | (1) SN01                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:20.0        | yes                           |
| A3           | (1) SN01                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:28.0        | yes                           |
| A4           | (1) SN01                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:36.0        | yes                           |
| B1           | (2) SN02                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:43.0        | yes                           |
| B2           | (2) SN02                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:47.0        | yes                           |
| B3           | (2) SN02                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:52.0        | yes                           |
| B4           | (2) SN02                     | WFC3/IR                             | 1                  | 25-Nov-2013 21:03:57.0        | yes                           |
| C1           | (3) PS1-12CGY                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:04.0        | yes                           |
| C2           | (3) PS1-12CGY                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:11.0        | yes                           |
| C3           | (3) PS1-12CGY                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:18.0        | yes                           |
| C4           | (3) PS1-12CGY                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:26.0        | yes                           |
| D1           | (4) PS1-12CBD                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:33.0        | yes                           |
| D2           | (4) PS1-12CBD                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:40.0        | yes                           |
| D3           | (4) PS1-12CBD                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:47.0        | yes                           |
| D4           | (4) PS1-12CBD                | WFC3/IR                             | 1                  | 25-Nov-2013 21:04:54.0        | yes                           |
| E1           | (5) PS1-A470110              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:01.0        | yes                           |
| E2           | (5) PS1-A470110              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:09.0        | yes                           |
| E3           | (5) PS1-A470110              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:16.0        | yes                           |
| E4           | (5) PS1-A470110              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:23.0        | yes                           |
| F1           | (6) PS1-A470041              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:30.0        | yes                           |

Proposal 13046 (STScI Edit Number: 31, Created: Monday, November 25, 2013 9:15:32 PM EST) - Overview

| <b>Visit</b> | <b>Targets used in Visit</b> | <b>Configurations used in Visit</b> | <b>Orbits Used</b> | <b>Last Orbit Planner Run</b> | <b>OP Current with Visit?</b> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| F2           | (6) PS1-A470041              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:37.0        | yes                           |
| F3           | (6) PS1-A470041              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:48.0        | yes                           |
| F4           | (6) PS1-A470041              | WFC3/IR                             | 1                  | 25-Nov-2013 21:05:55.0        | yes                           |
| F5           | (6) PS1-A470041              | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:03.0        | yes                           |
| G1           | (7) PS1-A470240              | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:10.0        | yes                           |
| G2           | (7) PS1-A470240              | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:17.0        | yes                           |
| G3           | (7) PS1-A470240              | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:24.0        | yes                           |
| G4           | (7) PS1-A470240              | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:31.0        | yes                           |
| H1           | (8) PS1-13QQ                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:38.0        | yes                           |
| H2           | (8) PS1-13QQ                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:45.0        | yes                           |
| H3           | (8) PS1-13QQ                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:52.0        | yes                           |
| H4           | (8) PS1-13QQ                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:06:58.0        | yes                           |
| I1           | (9) PS1-13LO                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:05.0        | yes                           |
| I2           | (9) PS1-13LO                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:12.0        | yes                           |
| I3           | (9) PS1-13LO                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:19.0        | yes                           |
| I4           | (9) PS1-13LO                 | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:26.0        | yes                           |
| J1           | (10) PS1-C490037             | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:33.0        | yes                           |
| J2           | (10) PS1-C490037             | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:40.0        | yes                           |
| J3           | (10) PS1-C490037             | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:47.0        | yes                           |
| J4           | (10) PS1-C490037             | WFC3/IR                             | 1                  | 25-Nov-2013 21:07:54.0        | yes                           |
| K1           | (11) PS1-C490521             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:01.0        | yes                           |
| K2           | (11) PS1-C490521             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:11.0        | yes                           |
| K3           | (11) PS1-C490521             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:18.0        | yes                           |
| K4           | (11) PS1-C490521             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:25.0        | yes                           |
| K5           | (11) PS1-C490521             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:32.0        | yes                           |

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|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| L1           | (12) PS1-D500100             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:39.0        | yes                           |
| L2           | (12) PS1-D500100             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:46.0        | yes                           |
| L3           | (12) PS1-D500100             | WFC3/IR                             | 1                  | 25-Nov-2013 21:08:53.0        | yes                           |
| L4           | (12) PS1-D500100             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:00.0        | yes                           |
| M1           | (13) PS1-D500300             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:07.0        | yes                           |
| M2           | (13) PS1-D500300             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:14.0        | yes                           |
| M3           | (13) PS1-D500300             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:21.0        | yes                           |
| M4           | (13) PS1-D500300             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:28.0        | yes                           |
| N1           | (14) PS1-E510457             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:33.0        | yes                           |
| N2           | (14) PS1-E510457             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:38.0        | yes                           |
| N3           | (14) PS1-E510457             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:42.0        | yes                           |
| N4           | (14) PS1-E510457             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:47.0        | yes                           |
| O1           | (15) PS1-F520062             | WFC3/IR                             | 1                  | 25-Nov-2013 21:09:53.0        | yes                           |
| O2           | (15) PS1-F520062             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:00.0        | yes                           |
| O3           | (15) PS1-F520062             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:07.0        | yes                           |
| O4           | (15) PS1-F520062             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:13.0        | yes                           |
| P1           | (16) PS1-F520107             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:19.0        | yes                           |
| P2           | (16) PS1-F520107             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:23.0        | yes                           |
| P3           | (16) PS1-F520107             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:28.0        | yes                           |
| P4           | (16) PS1-F520107             | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:32.0        | yes                           |
| Q1           | (101) PS1-F520188            | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:38.0        | yes                           |
| Q2           | (101) PS1-F520188            | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:45.0        | yes                           |
| Q3           | (101) PS1-F520188            | WFC3/IR                             | 1                  | 25-Nov-2013 21:10:52.0        | yes                           |
| Q4           | (101) PS1-F520188            | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:02.0        | yes                           |
| R1           | (17) PS1-G530251             | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:09.0        | yes                           |

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|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| R2           | (17) PS1-G530251             | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:16.0        | yes                           |
| R3           | (17) PS1-G530251             | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:23.0        | yes                           |
| R4           | (17) PS1-G530251             | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:30.0        | yes                           |
| S1           | (102) PS1-H540118            | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:35.0        | yes                           |
| S2           | (102) PS1-H540118            | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:39.0        | yes                           |
| S3           | (102) PS1-H540118            | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:44.0        | yes                           |
| S4           | (102) PS1-H540118            | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:48.0        | yes                           |
| T1           | (103) PS1-H540087            | WFC3/IR                             | 1                  | 25-Nov-2013 21:11:54.0        | yes                           |
| T2           | (103) PS1-H540087            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:01.0        | yes                           |
| T3           | (103) PS1-H540087            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:08.0        | yes                           |
| T4           | (103) PS1-H540087            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:15.0        | yes                           |
| U1           | (104) PS1-H540181            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:22.0        | yes                           |
| U2           | (104) PS1-H540181            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:29.0        | yes                           |
| U3           | (104) PS1-H540181            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:37.0        | yes                           |
| U4           | (104) PS1-H540181            | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:44.0        | yes                           |
| UA           | (105) PS1-H540181A           | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:49.0        | yes                           |
| UB           | (106) PS1-H540181B           | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:54.0        | yes                           |
| UC           | (107) PS1-H540181C           | WFC3/IR                             | 1                  | 25-Nov-2013 21:12:58.0        | yes                           |
| UD           | (120) PS1-J560027            | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:03.0        | yes                           |
| UJ           | (105) PS1-H540181A           | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:07.0        | yes                           |
| UK           | (106) PS1-H540181B           | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:11.0        | yes                           |
| UL           | (107) PS1-H540181C           | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:16.0        | yes                           |
| UM           | (120) PS1-J560027            | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:20.0        | yes                           |
| UV           | (104) PS1-H540181            | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:24.0        | yes                           |
| UW           | (105) PS1-H540181A           | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:29.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| UX           | (106) PS1-H540181B           | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:33.0        | yes                           |
| UY           | (107) PS1-H540181C           | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:38.0        | yes                           |
| UZ           | (120) PS1-J560027            | WFC3/IR                             | 1                  | 25-Nov-2013 21:13:42.0        | yes                           |
| V1           | (120) PS1-J560027            | WFC3/IR                             | 2                  | 25-Nov-2013 21:13:49.0        | yes                           |
| V2           | (120) PS1-J560027            | WFC3/IR                             | 2                  | 25-Nov-2013 21:13:57.0        | yes                           |
| V3           | (120) PS1-J560027            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:03.0        | yes                           |
| V4           | (120) PS1-J560027            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:07.0        | yes                           |
| V5           | (120) PS1-J560027            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:14.0        | yes                           |
| W1           | (121) PS1-J550202            | WFC3/IR                             | 2                  | 25-Nov-2013 21:14:24.0        | yes                           |
| W2           | (121) PS1-J550202            | WFC3/IR                             | 2                  | 25-Nov-2013 21:14:33.0        | yes                           |
| W3           | (121) PS1-J550202            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:38.0        | yes                           |
| W4           | (121) PS1-J550202            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:43.0        | yes                           |
| W5           | (121) PS1-J550202            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:49.0        | yes                           |
| X1           | (122) PS1-J560054            | WFC3/IR                             | 1                  | 25-Nov-2013 21:14:56.0        | yes                           |
| X2           | (122) PS1-J560054            | WFC3/IR                             | 1                  | 25-Nov-2013 21:15:04.0        | yes                           |
| X3           | (122) PS1-J560054            | WFC3/IR                             | 1                  | 25-Nov-2013 21:15:11.0        | yes                           |
| X4           | (122) PS1-J560054            | WFC3/IR                             | 1                  | 25-Nov-2013 21:15:18.0        | yes                           |

117 Total Orbits Used

## ABSTRACT

Progress on measuring dark energy properties with supernovae was rapid when the samples were small. However, today, the statistical errors from sample size are not the most important ones. Systematic errors introduced by photometry, light curve fitters, and by dust limit progress. Observations of SN Ia in the IR offer the most promising way forward to a more accurate measurement of cosmic expansion history. Theory predicts

and empirical evidence shows that SN Ia are more nearly standard candles in the Y, J, and H bands than in the optical bands. Dust absorption is similarly a much smaller problem in the near IR. The drawback is that precise measurements of the restframe infrared flux from cosmologically interesting supernovae at  $z \sim 0.3$  to 0.5 are not feasible from the ground. HST can solve this problem. By following up the most promising of the flood of SN Ia we are discovering in PanSTARRS fields, WFC3/IR can obtain rest frame IR observations that will lead to precise cosmic distances and the best knowledge of dark energy properties. Once this approach proves its worth, a more extensive sample would provide powerful constraints on dark energy properties and could distinguish between a cosmological constant and more exotic forms of dark energy.

#### **OBSERVING DESCRIPTION**

there are 3 visits for each target.

The exposures are just about identical for each visit.

The visits are spaced out by,

first asap, second +5-7 days after the first,

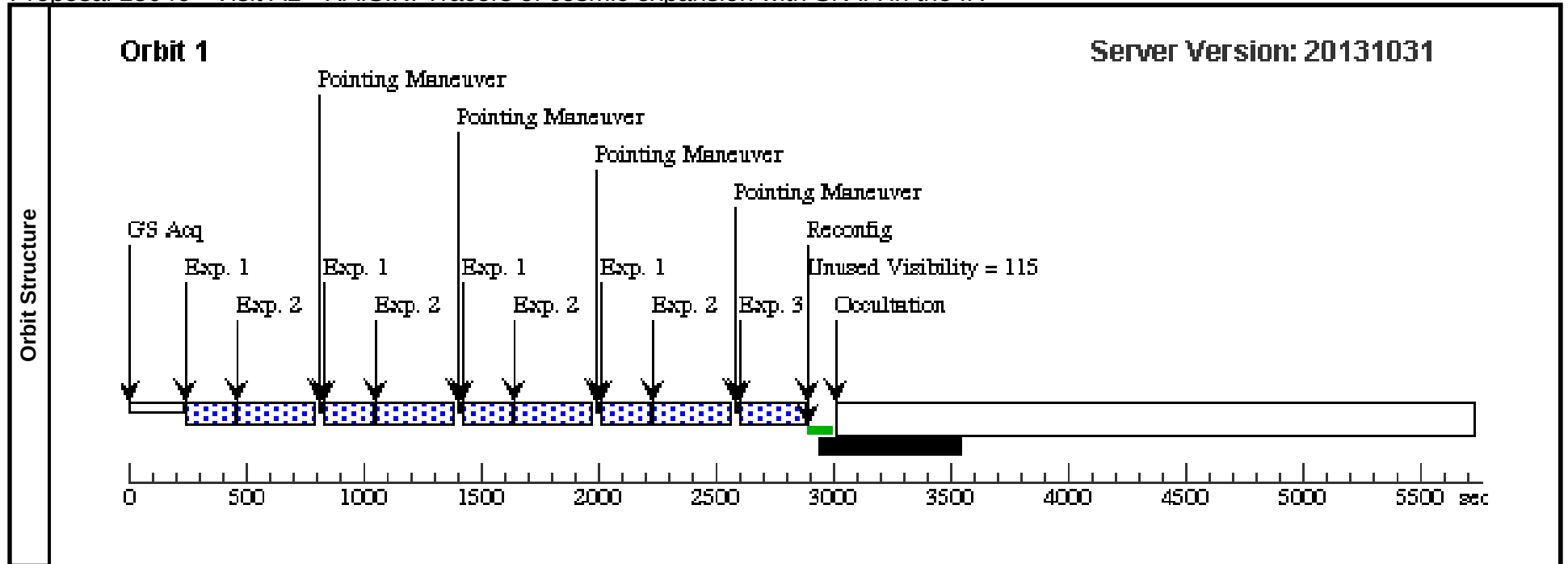
third, +13-16 days after the third.

the fourth... about 6 months later.

# Proposal 13046 - Visit A1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

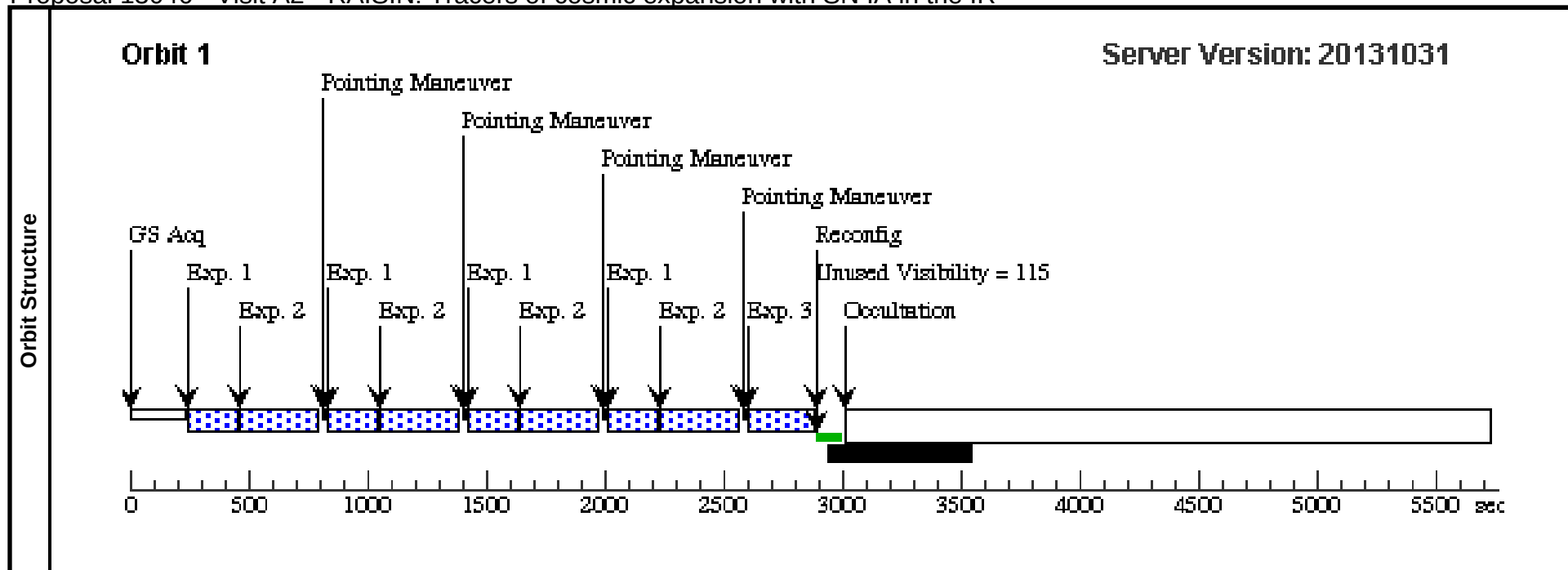
|               |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|---------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|------------------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit         | Proposal 13046, Visit A1                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           | Tue Nov 26 02:15:33 GMT 2013 |
|               | Diagnostic Status: No Diagnostics             |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Scientific Instruments: WFC3/IR               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Special Requirements: SCHED 100%              |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Comments: single guide star acq is acceptable |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Patterns      | #                                             | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |                        |                                     |                                                                              | Exposures |                              |
|               | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                        |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets | #                                             | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                 |                                     | Miscellaneous                                                                |           |                              |
|               | (1)                                           | SN01                                                                                                                     | RA: 03 31 57.4210 (52.9892542d)<br>Dec: -28 53 0.81 (-28.88356d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                   |                                     | Reference Frame: ICRS                                                        |           |                              |
|               | Comments: PS1-12bqp (2012-J-440005)           |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Exposures     | #                                             | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|               | 1                                             |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit A1 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|               |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|               | 2                                             |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS 25 |                        | Pattern 1, Exps 1-2 in Visit A1 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|               |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|               | 3                                             |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                        |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|               |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>]                                                                        |           | [1]                          |





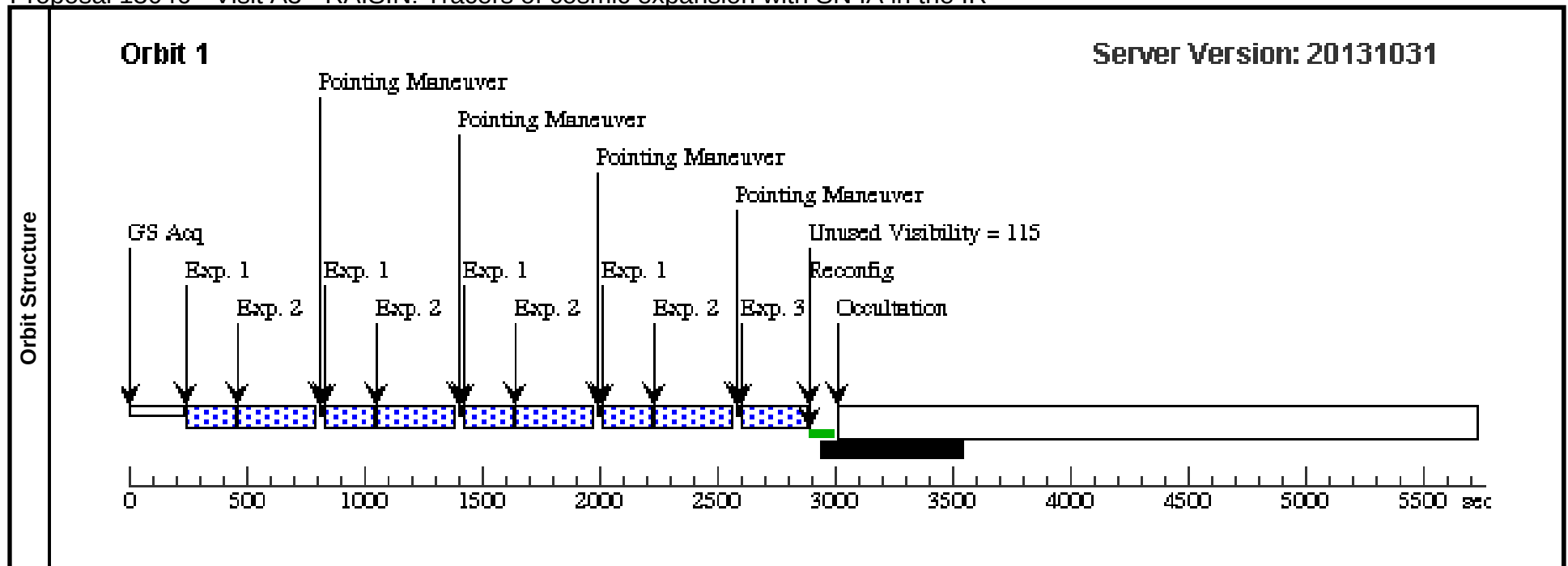
# Proposal 13046 - Visit A2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|               |                                                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|---------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|------------------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit         | Proposal 13046, Visit A2                                 |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           | Tue Nov 26 02:15:36 GMT 2013 |
|               | Diagnostic Status: No Diagnostics                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Scientific Instruments: WFC3/IR                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Special Requirements: SCHED 100%; AFTER A1 BY 5 D TO 7 D |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Comments: single guide star acq is acceptable            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Patterns      | #                                                        | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |                        |                                     |                                                                              | Exposures |                              |
|               | (1)                                                      | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                        |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets | #                                                        | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                 |                                     | Miscellaneous                                                                |           |                              |
|               | (1)                                                      | SN01                                                                                                                     | RA: 03 31 57.4210 (52.9892542d)<br>Dec: -28 53 0.81 (-28.88356d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                   |                                     | Reference Frame: ICRS                                                        |           |                              |
|               | Comments: PS1-12bqp (2012-J-440005)                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Exposures     | #                                                        | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|               | 1                                                        |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit A2 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|               |                                                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|               | 2                                                        |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS 25 |                        | Pattern 1, Exps 1-2 in Visit A2 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|               |                                                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|               | 3                                                        |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                        |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|               |                                                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>]                                                                        |           | [1]                          |



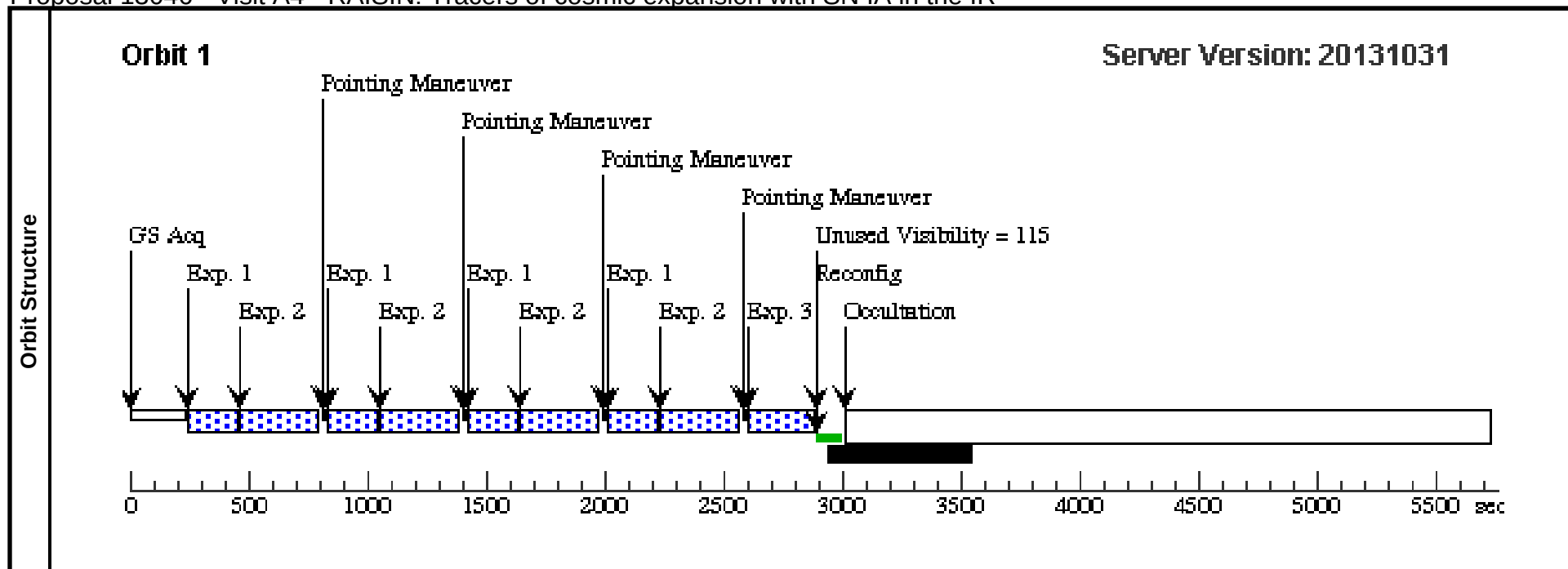
# Proposal 13046 - Visit A3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|               |                                                            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|---------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|------------------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit         | Proposal 13046, Visit A3                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           | Tue Nov 26 02:15:37 GMT 2013 |
|               | Diagnostic Status: No Diagnostics                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Scientific Instruments: WFC3/IR                            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Special Requirements: SCHED 100%; AFTER A1 BY 13 D TO 16 D |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|               | Comments: single guide star acq is acceptable              |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Patterns      | #                                                          | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |                        |                                     |                                                                              | Exposures |                              |
|               | (1)                                                        | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                        |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets | #                                                          | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                 |                                     | Miscellaneous                                                                |           |                              |
|               | (1)                                                        | SN01                                                                                                                     | RA: 03 31 57.4210 (52.9892542d)<br>Dec: -28 53 0.81 (-28.88356d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                   |                                     | Reference Frame: ICRS                                                        |           |                              |
|               | Comments: PS1-12bqp (2012-J-440005)                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Exposures     | #                                                          | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|               | 1                                                          |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit A3 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|               |                                                            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|               | 2                                                          |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS 25 |                        | Pattern 1, Exps 1-2 in Visit A3 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|               |                                                            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|               | 3                                                          |                                                                                                                          | (1) SN01                                                                           | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                        |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|               |                                                            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |                        |                                     | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit A4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|               |                                                              |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       |                              |
|---------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------|---------------|--------------------------------|------------------------|-------------------------------------|------------------------------------------------------------------------------|-----------------------|------------------------------|
| Visit         | Proposal 13046, Visit A4                                     |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       | Tue Nov 26 02:15:38 GMT 2013 |
|               | Diagnostic Status: No Diagnostics                            |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       |                              |
|               | Scientific Instruments: WFC3/IR                              |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       |                              |
|               | Special Requirements: SCHED 100%; AFTER A1 BY 180 D TO 360 D |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       |                              |
|               | Comments: single guide star acq is acceptable                |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       |                              |
| Patterns      | #                                                            | Primary Pattern                                                                                                          |          |                                                                                                               |               | Secondary Pattern              |                        |                                     |                                                                              | Exposures             |                              |
|               | (1)                                                          | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                |                        |                                     |                                                                              | (1-2)                 |                              |
| Fixed Targets | #                                                            | Name                                                                                                                     |          | Target Coordinates                                                                                            |               | Targ. Coord. Corrections       |                        | Fluxes                              |                                                                              | Miscellaneous         |                              |
|               | (1)                                                          | SN01                                                                                                                     |          | RA: 03 31 57.4210 (52.9892542d)<br>Dec: -28 53 0.81 (-28.88356d)<br>Equinox: J2000                            |               |                                |                        | V=23                                |                                                                              | Reference Frame: ICRS |                              |
|               | Comments: PS1-12bqp (2012-J-440005)                          |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     |                                                                              |                       |                              |
| Exposures     | #                                                            | Label                                                                                                                    | Target   | Config,Mode,Aperture                                                                                          | Spectral Els. | Opt. Params.                   | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                       | Orbit                        |
|               | 1                                                            |                                                                                                                          | (1) SN01 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit A4 (1) | 184.223035 Secs (736.892 Secs)                                               |                       |                              |
|               |                                                              |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |
|               | 2                                                            |                                                                                                                          | (1) SN01 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W         | NSAMP=15;<br>SAMP-SEQ=SPARS 25 |                        | Pattern 1, Exps 1-2 in Visit A4 (1) | 321.750541 Secs (1287.002 Secs)                                              |                       |                              |
|               |                                                              |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |
|               | 3                                                            |                                                                                                                          | (1) SN01 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                        |                                     | 252.986788 Secs (252.987 Secs)                                               |                       |                              |
|               |                                                              |                                                                                                                          |          |                                                                                                               |               |                                |                        |                                     | [==>]                                                                        |                       | [1]                          |



# Proposal 13046 - Visit B1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:15:39 GMT 2013

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Visit                                         | Proposal 13046, Visit B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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                                                                                                                                                               |                                                                                    |                             |                          |                                   |               |                                     |                                                                       |           | Tue Nov 26 02:15:39 GMT 2013 |
|                                               | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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|                                               | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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|                                               | Special Requirements: SCHED 100%; ORIENT 340D TO 10 D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                                                                    |                             |                          |                                   |               |                                     |                                                                       | (1-2)     |                              |
| Fixed Targets                                 | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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                                                                                                                                                               | RA: 02 28 20.8400 (37.0868333d)<br>Dec: -04 25 28.00 (-4.42444d)<br>Equinox: J2000 |                             |                          |                                   | V=23          |                                     | Reference Frame: ICRS                                                 |           |                              |
|                                               | Comments: PS1-12bqh (2012-J-440229)<br>PS1-12bqi (2012-J-440236)<br>position is between these 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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|                                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Orbit Structure                               | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div>Unused Visibility = 12</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Occultation</div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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|                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                       |           |                              |



Proposal 13046 - Visit B2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                                                                      |                              |
|--------------------------------------------------------------------------------------|------------------------------|
| Proposal 13046 - Visit B2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR |                              |
| Proposal 13046, Visit B2                                                             | Tue Nov 26 02:15:39 GMT 2013 |

| Visit                                                                                                    | Proposal 13046, Visit B2<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: WFC3/IR<br>Special Requirements: SCHED 100%; ORIENT 340D TO 10 D; AFTER B1 BY 5 D TO 7 D<br><i>Comments: single guide star acq is acceptable</i> |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                         |                                                                         |           |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------|--------------------------|-----------------------------------|---------------|-----------------------------------------|-------------------------------------------------------------------------|-----------|
| Patterns                                                                                                 | #                                                                                                                                                                                                                                         | Primary Pattern                                                                                                                                                                                                             |                                                                                    |                             |                          | Secondary Pattern                 |               |                                         |                                                                         | Exposures |
|                                                                                                          | (2)                                                                                                                                                                                                                                       | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                                                                    |                             |                          |                                   |               |                                         |                                                                         | (1-2)     |
| Fixed Targets                                                                                            | #                                                                                                                                                                                                                                         | Name                                                                                                                                                                                                                        | Target Coordinates                                                                 |                             | Targ. Coord. Corrections |                                   | Fluxes        |                                         | Miscellaneous                                                           |           |
|                                                                                                          | (2)                                                                                                                                                                                                                                       | SN02                                                                                                                                                                                                                        | RA: 02 28 20.8400 (37.0868333d)<br>Dec: -04 25 28.00 (-4.42444d)<br>Equinox: J2000 |                             |                          |                                   | V=23          |                                         | Reference Frame: ICRS                                                   |           |
| <i>Comments: PS1-12bqh (2012-J-440229)<br/>PS1-12bqi (2012-J-440236)<br/>position is between these 2</i> |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                         |                                                                         |           |
| Exposures                                                                                                | #                                                                                                                                                                                                                                         | Label                                                                                                                                                                                                                       | Target                                                                             | Config, Mode, Aperture      | Spectral Els.            | Opt. Params.                      | Special Reqs. | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                         | Orbit     |
|                                                                                                          | 1                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             | (2) SN02                                                                           | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS<br>50;<br>NSAMP=12 |               | Pattern 2, Exps 1-2 i<br>n Visit B2 (2) | 552.937252 Secs (1105.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] | [1]       |
|                                                                                                          | 2                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             | (2) SN02                                                                           | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR<br>S50 |               | Pattern 2, Exps 1-2 i<br>n Visit B2 (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] | [1]       |
|                                                                                                          |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                         |                                                                         |           |

### Orbit 1

The diagram illustrates the sequence of observations over one orbit. It includes acquisition time, exposure times for two filters (F125W and F160W), a pointing maneuver, and a reconfiguration event before occultation begins.

**Server Version: 20131031**

Proposal 13046 - Visit B3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                                                                      |                              |
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| Proposal 13046 - Visit B3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR |                              |
| Proposal 13046, Visit B3                                                             | Tue Nov 26 02:15:40 GMT 2013 |

| Proposal 13046, Visit B3                                                                                                       |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     |                                 | Tue Nov 26 02:15:40 GMT 2013 |       |
|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------|--------------------------|---------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|---------------------------------|------------------------------|-------|
| Visit                                                                                                                          | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SCHED 100%; ORIENT 340D TO 10 D; AFTER B1 BY 13 D TO 16 D<br><i>Comments: single guide star acq is acceptable</i> |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     |                                 |                              |       |
|                                                                                                                                |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     |                                 |                              |       |
| Patterns                                                                                                                       | #                                                                                                                                                                                                                      | Primary Pattern                                                                                                  |                                                                                    |                      |                          | Secondary Pattern                                                                                       |               |                                     |                                 | Exposures                    |       |
|                                                                                                                                | (2)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing= |                                                                                    |                      |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |               |                                     |                                 | (1-2)                        |       |
| Fixed Targets                                                                                                                  | #                                                                                                                                                                                                                      | Name                                                                                                             | Target Coordinates                                                                 |                      | Targ. Coord. Corrections |                                                                                                         | Fluxes        |                                     | Miscellaneous                   |                              |       |
|                                                                                                                                | (2)                                                                                                                                                                                                                    | SN02                                                                                                             | RA: 02 28 20.8400 (37.0868333d)<br>Dec: -04 25 28.00 (-4.42444d)<br>Equinox: J2000 |                      |                          |                                                                                                         | V=23          |                                     | Reference Frame: ICRS           |                              |       |
| <i>Comments: PS1-12bqh (2012-J-440229)<br/>           PS1-12bqi (2012-J-440236)<br/>           position is between these 2</i> |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     |                                 |                              |       |
| Exposures                                                                                                                      | #                                                                                                                                                                                                                      | Label                                                                                                            | Target                                                                             | Config,Mode,Aperture | Spectral Els.            | Opt. Params.                                                                                            | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |
|                                                                                                                                | 1                                                                                                                                                                                                                      | (2) SN02                                                                                                         | WFC3/IR, MULTIACCUM, IR-FIX                                                        | F125W                |                          | SAMP-SEQ=SPARS 50;<br>NSAMP=12                                                                          |               | Pattern 2, Exps 1-2 in Visit B3 (2) | 552.937252 Secs (1105.875 Secs) |                              |       |
|                                                                                                                                |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     | [==>(Pattern 1)]                |                              | [1]   |
|                                                                                                                                |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     | [==>(Pattern 2)]                |                              |       |
|                                                                                                                                | 2                                                                                                                                                                                                                      | (2) SN02                                                                                                         | WFC3/IR, MULTIACCUM, IR-FIX                                                        | F160W                |                          | NSAMP=15;<br>SAMP-SEQ=SPARS50                                                                           |               | Pattern 2, Exps 1-2 in Visit B3 (2) | 702.938605 Secs (1405.877 Secs) |                              |       |
|                                                                                                                                |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     | [==>(Pattern 1)]                |                              | [1]   |
|                                                                                                                                |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     | [==>(Pattern 2)]                |                              |       |
| Orbit Structure                                                                                                                | <div> <div>Orbit 1</div> <div>Server Version: 20131031</div> </div>                                                                                                                                                    |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     |                                 |                              |       |
|                                                                                                                                | <div> <div>GS Acq</div> <div>Exp. 1</div> <div>Exp. 2</div> <div>Pointing Maneuver</div> <div>Exp. 1</div> <div>Exp. 2</div> <div>Reconfig</div> <div>Unused Visibility = 12</div> <div>Occultation</div> </div>       |                                                                                                                  |                                                                                    |                      |                          |                                                                                                         |               |                                     |                                 |                              |       |

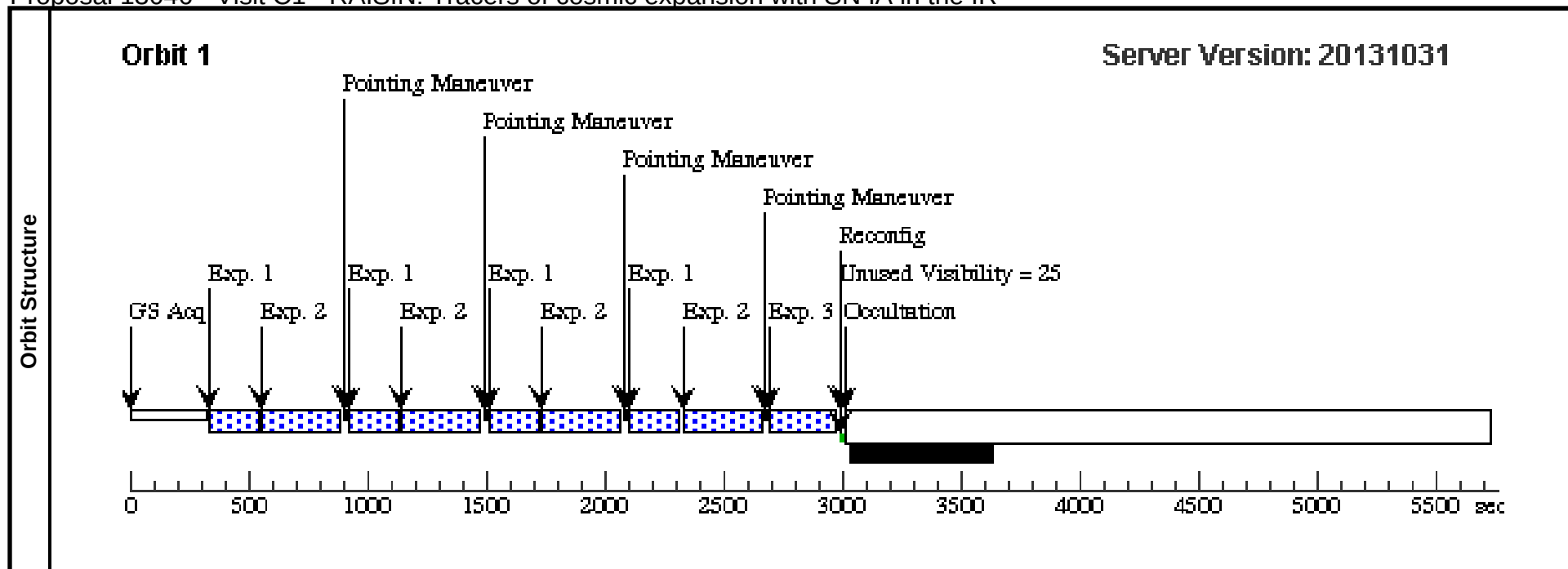
Proposal 13046 - Visit B4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

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| Proposal 13046 - Visit B4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR |                              |
| Proposal 13046, Visit B4                                                             | Tue Nov 26 02:15:40 GMT 2013 |

|                                               |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------|--------------------------|-----------------------------------|---------------|-------------------------------------|-------------------------------------------------------------------------|-----------|------------------------------|
| Visit                                         | Proposal 13046, Visit B4                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           | Tue Nov 26 02:15:40 GMT 2013 |
|                                               | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
|                                               | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
|                                               | Special Requirements: SCHED 100%; AFTER B1 BY 180 D TO 360 D                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
| Comments: single guide star acq is acceptable |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
| Patterns                                      | #                                                                                                                                                                                                                                                                                                                                      | Primary Pattern                                                                                                                                                                                                             |                                                                                    |                             |                          | Secondary Pattern                 |               |                                     |                                                                         | Exposures |                              |
|                                               | (2)                                                                                                                                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                                                                    |                             |                          |                                   |               |                                     |                                                                         | (1-2)     |                              |
| Fixed Targets                                 | #                                                                                                                                                                                                                                                                                                                                      | Name                                                                                                                                                                                                                        | Target Coordinates                                                                 |                             | Targ. Coord. Corrections |                                   | Fluxes        |                                     | Miscellaneous                                                           |           |                              |
|                                               | (2)                                                                                                                                                                                                                                                                                                                                    | SN02                                                                                                                                                                                                                        | RA: 02 28 20.8400 (37.0868333d)<br>Dec: -04 25 28.00 (-4.42444d)<br>Equinox: J2000 |                             |                          |                                   | V=23          |                                     | Reference Frame: ICRS                                                   |           |                              |
|                                               | Comments: PS1-12bqh (2012-J-440229)<br>PS1-12bqi (2012-J-440236)<br>position is between these 2                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
|                                               |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
| Exposures                                     | #                                                                                                                                                                                                                                                                                                                                      | Label                                                                                                                                                                                                                       | Target                                                                             | Config,Mode,Aperture        | Spectral Els.            | Opt. Params.                      | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |           | Orbit                        |
|                                               | 1                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             | (2) SN02                                                                           | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS<br>50;<br>NSAMP=12 |               | Pattern 2, Exps 1-2 in Visit B4 (2) | 552.937252 Secs (1105.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |           | [1]                          |
|                                               | 2                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             | (2) SN02                                                                           | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS<br>50 |               | Pattern 2, Exps 1-2 in Visit B4 (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |           | [1]                          |
|                                               |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |
| Orbit Structure                               | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div>Unused Visibility = 12</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Occultation</div></div> <div></div> <div>05001000150020002500300035004000450050005500 sec</div> |                                                                                                                                                                                                                             |                                                                                    |                             |                          |                                   |               |                                     |                                                                         |           |                              |

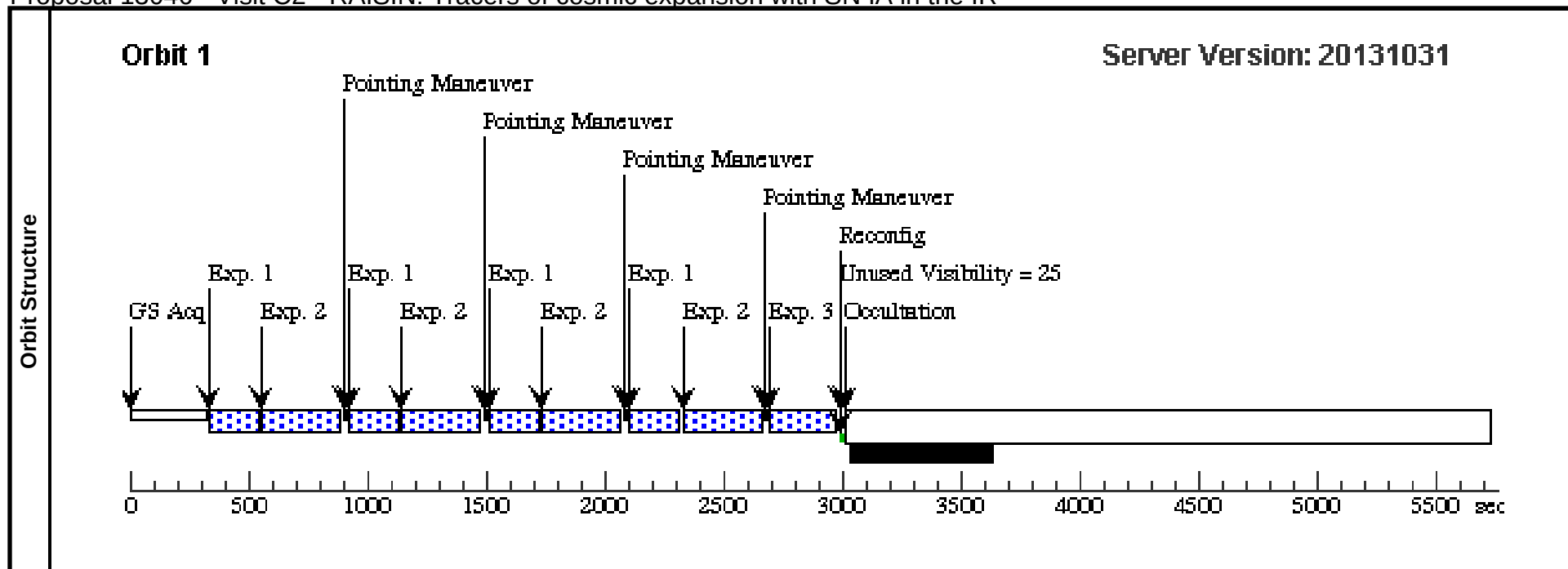
# Proposal 13046 - Visit C1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                     |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------|-------------------------------|--------------------------|--------------------|--------------------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                               | Proposal 13046, Visit C1                                                                         |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           | Tue Nov 26 02:15:41 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics                                                                |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|                                     | Scientific Instruments: WFC3/IR                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|                                     | Special Requirements: SCHED 100%; BETWEEN 20-NOV-2012:00:00:00 AND 08-DEC-2012:00:00:00; ON HOLD |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|                                     | Comments: single quide star acq is acceptable                                                    |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| On Hold Comments: too               |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Patterns                            | #                                                                                                | Primary Pattern                     |                                |                               |                          | Secondary Pattern  |                                      |                                      |                                 | Exposures |                              |
|                                     | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                | Coordinate Frame=POS-TARG     |                          |                    |                                      |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER                      |                                                                                                  | Pattern Orientation=18.528          |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Number Of Points=4                  |                                                                                                  | Angle Between Sides=74.653          |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Point Spacing=0.572                 |                                                                                                  | Center Pattern=false                |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Line Spacing=0.365                  |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Fixed Targets                       | #                                                                                                | Name                                | Target Coordinates             |                               | Targ. Coord. Corrections |                    | Fluxes                               |                                      | Miscellaneous                   |           |                              |
|                                     | (3)                                                                                              | PS1-12CGY                           | RA: 02 25 8.9650 (36.2873542d) |                               |                          |                    | V=23                                 |                                      | Reference Frame: ICRS           |           |                              |
|                                     | Alt Name1: 2012-K-450339                                                                         |                                     | Dec: -03 21 12.21 (-3.35339d)  |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Equinox: J2000                      |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Comments: PS1-12cgy (2012-K-450339) |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| Exposures                           | #                                                                                                | Label                               | Target                         | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                        | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                     | 1                                                                                                |                                     | (3) PS1-12CGY                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                              | Pattern 1, Exps 1-2 i n Visit C1 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |
|                                     | [==>(Pattern 1)]                                                                                 |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|                                     | [==>(Pattern 2)]                                                                                 |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|                                     | [==>(Pattern 3)]                                                                                 |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
|                                     | [==>(Pattern 4)]                                                                                 |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| 2                                   |                                                                                                  | (3) PS1-12CGY                       | WFC3/IR, MULTIACCUM, IRSUB512  | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 i n Visit C1 (1) | 321.750541 Secs (1287.002 Secs)      |                                 |           |                              |
| [==>(Pattern 1)]                    |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| [==>(Pattern 2)]                    |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| [==>(Pattern 3)]                    |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| [==>(Pattern 4)]                    |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| 3                                   |                                                                                                  | (3) PS1-12CGY                       | WFC3/IR, MULTIACCUM, IRSUB512  | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                      | 252.986788 Secs (252.987 Secs)       |                                 |           |                              |
| [==>]                               |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |
| [1]                                 |                                                                                                  |                                     |                                |                               |                          |                    |                                      |                                      |                                 |           |                              |



# Proposal 13046 - Visit C2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

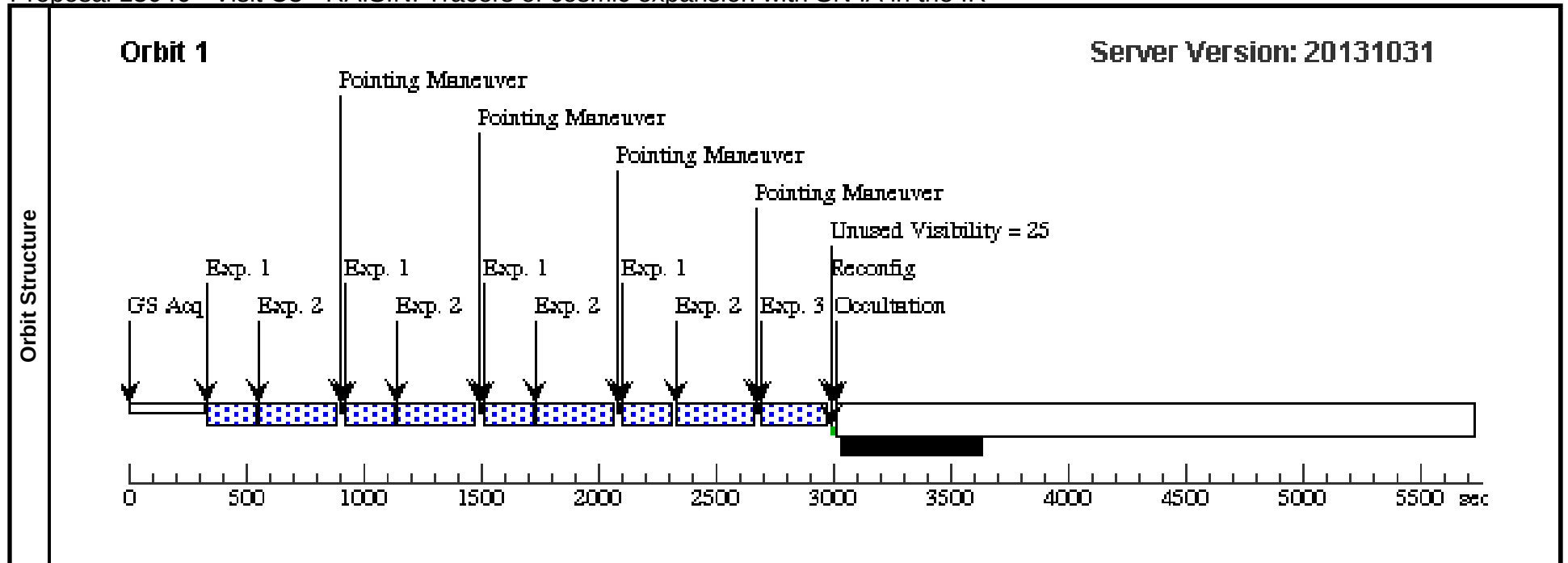
|                                     |                                                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|-------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|--------------------------------------|------------------------------------------------------------------------------|-----------------------|------------------------------|--|
| Visit                               | Proposal 13046, Visit C2                                          |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       | Tue Nov 26 02:15:42 GMT 2013 |  |
|                                     | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|                                     | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|                                     | Special Requirements: SCHED 100%; AFTER C1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|                                     | Comments: single quide star acq is acceptable                     |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| On Hold Comments: too               |                                                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| Patterns                            | #                                                                 | Primary Pattern                                                                                                          |               |                                                 |                                                                                                               |                                | Secondary Pattern |                                      |                                                                              |                       | Exposures                    |  |
|                                     | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |               |                                                 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                      |                                                                              |                       | (1-2)                        |  |
| Fixed Targets                       | #                                                                 | Name                                                                                                                     |               | Target Coordinates                              |                                                                                                               | Targ. Coord. Corrections       |                   | Fluxes                               |                                                                              | Miscellaneous         |                              |  |
|                                     | (3)                                                               | PS1-12CGY                                                                                                                |               | RA: 02 25 8.9650 (36.2873542d)                  |                                                                                                               |                                |                   | V=23                                 |                                                                              | Reference Frame: ICRS |                              |  |
|                                     |                                                                   | Alt Name1: 2012-K-450339                                                                                                 |               | Dec: -03 21 12.21 (-3.35339d)<br>Equinox: J2000 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| Comments: PS1-12cgy (2012-K-450339) |                                                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| Exposures                           | #                                                                 | Label                                                                                                                    | Target        | Config,Mode,Aperture                            | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                               | Exp. Time (Total)/[Actual Dur.]                                              |                       | Orbit                        |  |
|                                     | 1                                                                 |                                                                                                                          | (3) PS1-12CGY | WFC3/IR, MULTIACCUM, IRSUB512                   | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 i n Visit C2 (1) | 184.223035 Secs (736.892 Secs)                                               |                       |                              |  |
|                                     |                                                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                                     | 2                                                                 |                                                                                                                          | (3) PS1-12CGY | WFC3/IR, MULTIACCUM, IRSUB512                   | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 i n Visit C2 (1) | 321.750541 Secs (1287.002 Secs)                                              |                       |                              |  |
|                                     |                                                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                                     | 3                                                                 |                                                                                                                          | (3) PS1-12CGY | WFC3/IR, MULTIACCUM, IRSUB512                   | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                      | 252.986788 Secs (252.987 Secs)                                               |                       |                              |  |
|                                     |                                                                   |                                                                                                                          |               |                                                 |                                                                                                               |                                |                   |                                      | [==>]                                                                        |                       | [1]                          |  |



# Proposal 13046 - Visit C3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

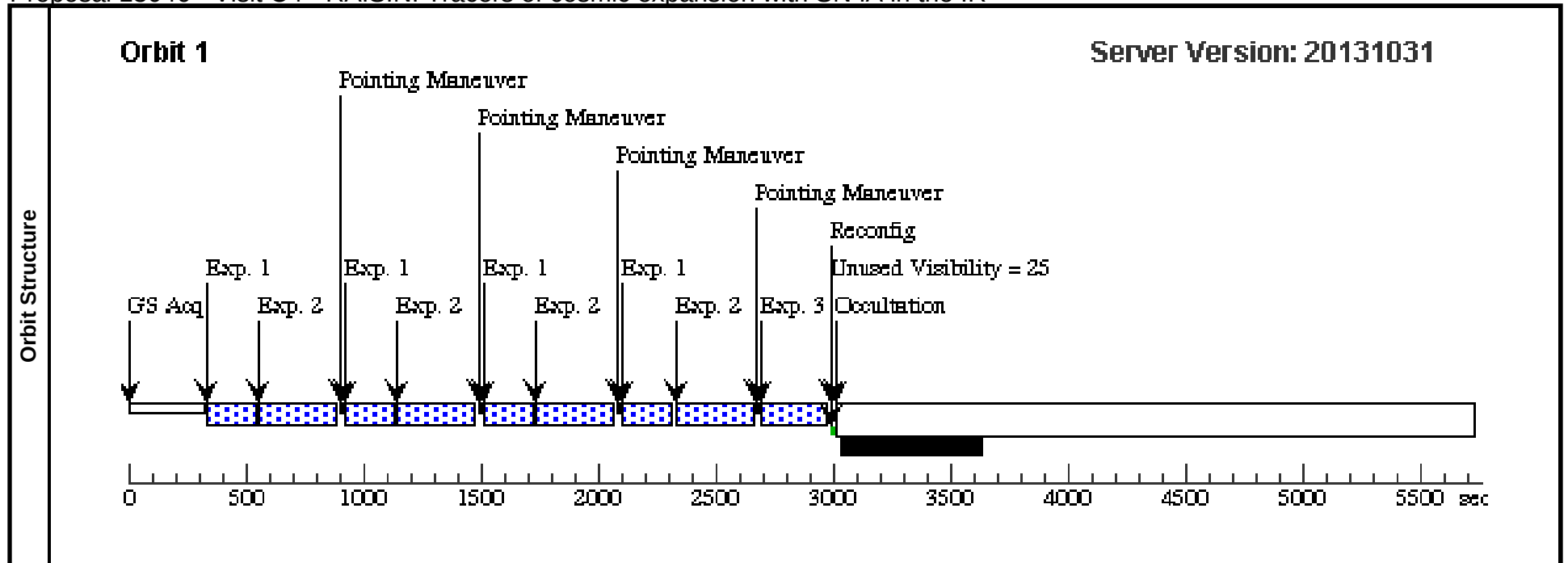
|                                     |                                                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                               | Proposal 13046, Visit C3                                            |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:42 GMT 2013 |       |
|                                     | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                                     | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                                     | Special Requirements: SCHED 100%; AFTER C1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                                     | Comments: single quide star acq is acceptable                       |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too               |                                                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns                            | #                                                                   | Primary Pattern                                                                                                          |               |                                                 |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                                     | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |               |                                                 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets                       | #                                                                   | Name                                                                                                                     |               | Target Coordinates                              |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                                     | (3)                                                                 | PS1-12CGY                                                                                                                |               | RA: 02 25 8.9650 (36.2873542d)                  |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                                     |                                                                     | Alt Name1: 2012-K-450339                                                                                                 |               | Dec: -03 21 12.21 (-3.35339d)<br>Equinox: J2000 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Comments: PS1-12cgy (2012-K-450339) |                                                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures                           | #                                                                   | Label                                                                                                                    | Target        | Config,Mode,Aperture                            |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                                     | 1                                                                   |                                                                                                                          | (3) PS1-12CGY | WFC3/IR, MULTIACCUM, IRSUB512                   |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit C3 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                                     |                                                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                                     | 2                                                                   |                                                                                                                          | (3) PS1-12CGY | WFC3/IR, MULTIACCUM, IRSUB512                   |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit C3 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                                     |                                                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                                     | 3                                                                   |                                                                                                                          | (3) PS1-12CGY | WFC3/IR, MULTIACCUM, IRSUB512                   |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                                     |                                                                     |                                                                                                                          |               |                                                 |                                                                                                               |                          |                                |               | [==>]                               |                                                                              | [1]                          |       |





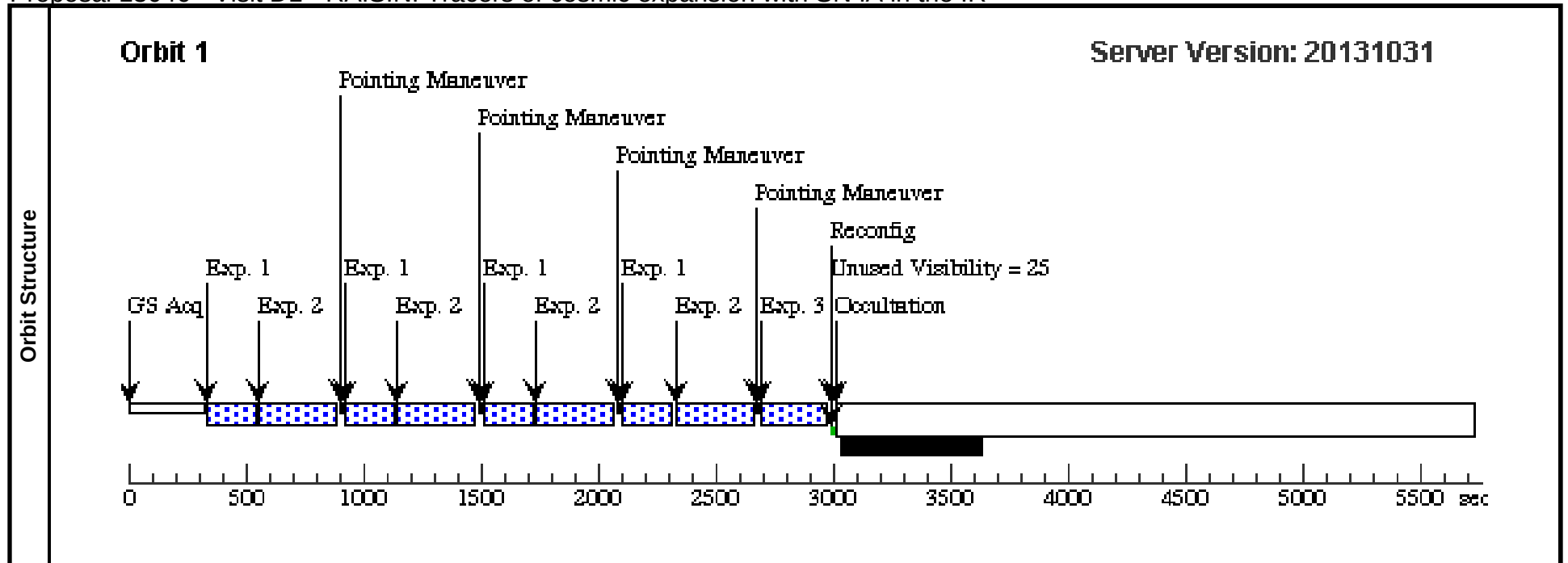
# Proposal 13046 - Visit C4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
|-------------------------------------|-----------------------------------------------------------------------|-------------------------------------|--------------------------------|-------------------------------|------------------------------------|-----------------------------------|---------------|-------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                               | Proposal 13046, Visit C4                                              |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           | Tue Nov 26 02:15:43 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics                                     |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
|                                     | Scientific Instruments: WFC3/IR                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
|                                     | Special Requirements: SCHED 100%; AFTER C1 BY 180 D TO 360 D; ON HOLD |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
|                                     | Comments: single quide star acq is acceptable                         |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| On Hold Comments: too               |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Patterns                            | #                                                                     | Primary Pattern                     |                                |                               |                                    | Secondary Pattern                 |               |                                     |                                 | Exposures |                              |
|                                     | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                | Coordinate Frame=POS-TARG     |                                    |                                   |               |                                     |                                 | (1-2)     |                              |
| Purpose=DITHER                      |                                                                       | Pattern Orientation=18.528          |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Number Of Points=4                  |                                                                       | Angle Between Sides=74.653          |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Point Spacing=0.572                 |                                                                       | Center Pattern=false                |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Line Spacing=0.365                  |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Fixed Targets                       | #                                                                     | Name                                | Target Coordinates             |                               | Targ. Coord. Corrections           |                                   | Fluxes        |                                     | Miscellaneous                   |           |                              |
|                                     | (3)                                                                   | PS1-12CGY                           | RA: 02 25 8.9650 (36.2873542d) |                               |                                    |                                   | V=23          |                                     | Reference Frame: ICRS           |           |                              |
|                                     |                                                                       | Alt Name1: 2012-K-450339            | Dec: -03 21 12.21 (-3.35339d)  |                               |                                    |                                   |               |                                     |                                 |           |                              |
|                                     |                                                                       | Equinox: J2000                      |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Comments: PS1-12cgy (2012-K-450339) |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| Exposures                           | #                                                                     | Label                               | Target                         | Config,Mode,Aperture          | Spectral Els.                      | Opt. Params.                      | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                     | 1                                                                     | (3)                                 | PS1-12CGY                      | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                              | SAMP-SEQ=SPARS 25;<br><br>NSAMP=9 |               | Pattern 1, Exps 1-2 in Visit C4 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     | [==>(Pattern 1)]                |           |                              |
|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     | [==>(Pattern 2)]                |           |                              |
|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     | [==>(Pattern 3)]                |           |                              |
|                                     | 2                                                                     | (3)                                 | PS1-12CGY                      | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                              | NSAMP=15;<br>SAMP-SEQ=SPAR S25    |               | Pattern 1, Exps 1-2 in Visit C4 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     | [==>(Pattern 1)]                |           |                              |
| [==>(Pattern 2)]                    |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| [==>(Pattern 3)]                    |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |
| 3                                   | (3)                                                                   | PS1-12CGY                           | WFC3/IR, MULTIACCUM, IRSUB512  | F160W                         | SAMP-SEQ=SPARS 25;<br><br>NSAMP=12 |                                   |               | 252.986788 Secs (252.987 Secs)      |                                 | [1]       |                              |
|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               | [==>]                               |                                 |           |                              |
|                                     |                                                                       |                                     |                                |                               |                                    |                                   |               |                                     |                                 |           |                              |



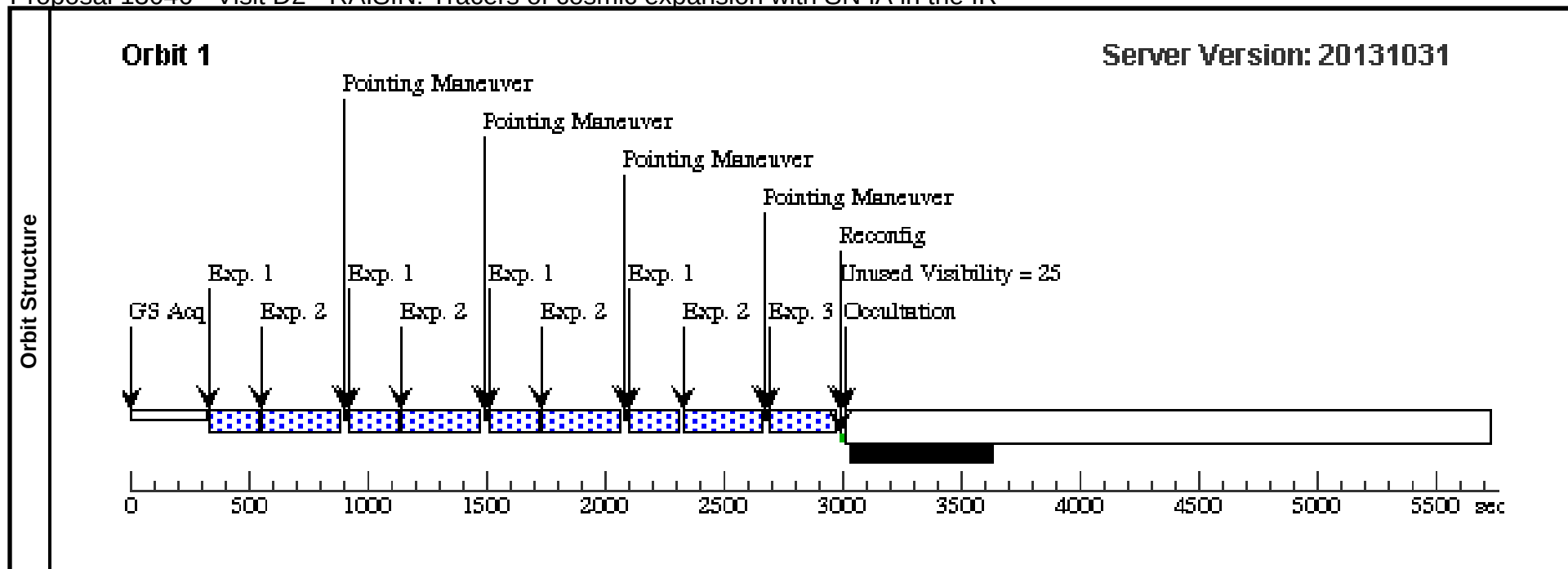
# Proposal 13046 - Visit D1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|--------------------------|--------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit D1                                                                         |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           | Tue Nov 26 02:15:44 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; BETWEEN 19-NOV-2012:00:00:00 AND 08-DEC-2012:00:00:00; ON HOLD |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                                                                                   |                                                                                                               |                          | Secondary Pattern              |                          |                                      |                                                                              | Exposures |                              |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                          |                                      |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                   |                                      | Miscellaneous                                                                |           |                              |
|                       | (4)                                                                                              | PS1-12CBD                                                                                                                | RA: 23 33 25.4420 (353.3560083d)<br>Dec: +00 18 37.77 (.31049d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                     |                                      | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: PS1-12cbd (2012-K-450082)                                                              |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      |                                                                              |           |                              |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs.            | Groups                               | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                                                |                                                                                                                          | (4) PS1-12CBD                                                                     | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARI O BASE1B3 | Pattern 1, Exps 1-2 i n Visit D1 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                                                |                                                                                                                          | (4) PS1-12CBD                                                                     | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                          | Pattern 1, Exps 1-2 i n Visit D1 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                                                |                                                                                                                          | (4) PS1-12CBD                                                                     | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                          |                                      | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                          |                                      | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit D2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

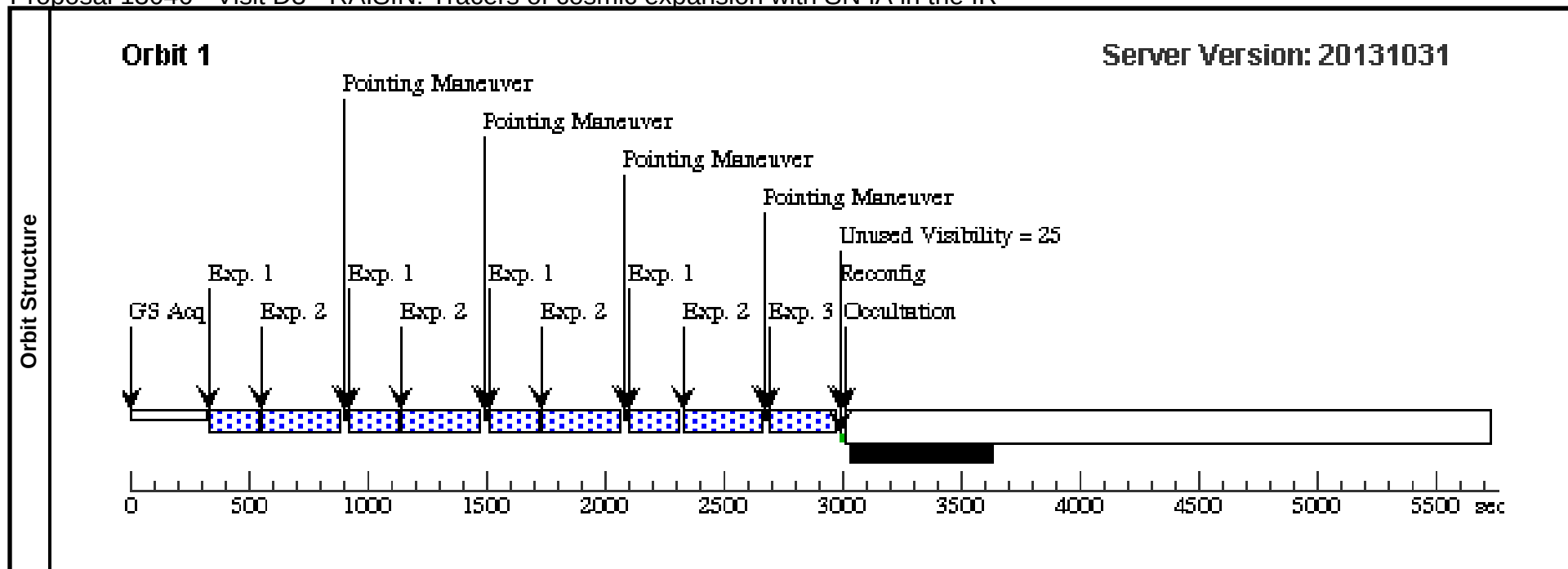
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|-------------------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|--------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                               | Proposal 13046, Visit D2                                            |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           | Tue Nov 26 02:15:44 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|                                     | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|                                     | Special Requirements: SCHED 100%; AFTER D1 BY 5 D TO 170 H; ON HOLD |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|                                     | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| On Hold Comments: too               |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Patterns                            | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                          |                                      |                                 | Exposures |                              |
|                                     | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                          |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER                      |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Number Of Points=4                  |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Point Spacing=0.572                 |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Line Spacing=0.365                  |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Fixed Targets                       | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                   |                                      | Miscellaneous                   |           |                              |
|                                     | (4)                                                                 | PS1-12CBD                           | RA: 23 33 25.4420 (353.3560083d) |                               |                          |                    | V=23                     |                                      | Reference Frame: ICRS           |           |                              |
|                                     | Dec: +00 18 37.77 (.31049d)                                         |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Equinox: J2000                      |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Comments: PS1-12cbd (2012-K-450082) |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Exposures                           | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.            | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                     | 1                                                                   |                                     | (4) PS1-12CBD                    | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | GS ACQ SCENARI O BASE1B3 | Pattern 1, Exps 1-2 i n Visit D2 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 1)]                |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 2)]                |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 3)]                |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 4)]                |           |                              |
| 2                                   |                                                                     | (4) PS1-12CBD                       | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |                          | Pattern 1, Exps 1-2 i n Visit D2 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 1)]                     |                                 |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 2)]                     |                                 |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 3)]                     |                                 |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                                   |                                                                     | (4) PS1-12CBD                       | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                          |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>]                                |                                 |           |                              |



# Proposal 13046 - Visit D3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

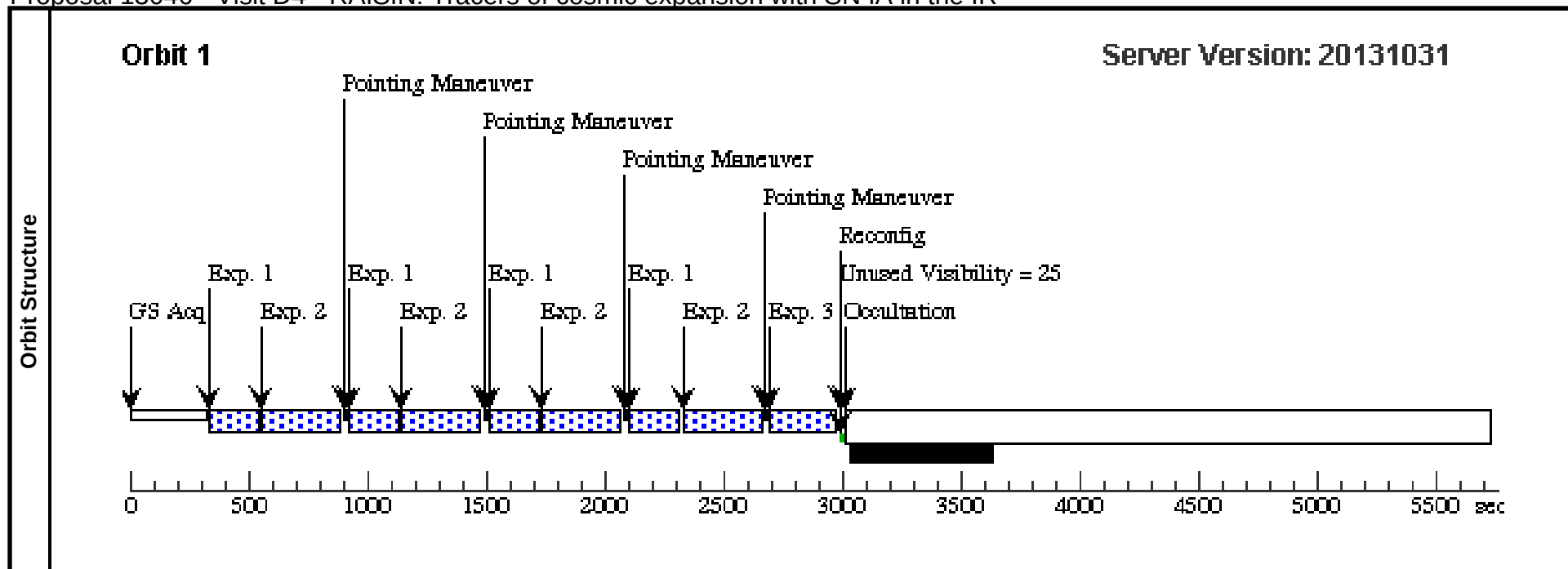
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|-------------------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|--------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                               | Proposal 13046, Visit D3                                            |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           | Tue Nov 26 02:15:45 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|                                     | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|                                     | Special Requirements: SCHED 100%; AFTER D1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
|                                     | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| On Hold Comments: too               |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Patterns                            | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                          |                                      |                                 | Exposures |                              |
|                                     | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                          |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER                      |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Number Of Points=4                  |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Point Spacing=0.572                 |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Line Spacing=0.365                  |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Fixed Targets                       | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                   |                                      | Miscellaneous                   |           |                              |
|                                     | (4)                                                                 | PS1-12CBD                           | RA: 23 33 25.4420 (353.3560083d) |                               |                          |                    | V=23                     |                                      | Reference Frame: ICRS           |           |                              |
|                                     | Dec: +00 18 37.77 (.31049d)                                         |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Equinox: J2000                      |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Comments: PS1-12cbd (2012-K-450082) |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      |                                 |           |                              |
| Exposures                           | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.            | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                     | 1                                                                   |                                     | (4) PS1-12CBD                    | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | GS ACQ SCENARI O BASE1B3 | Pattern 1, Exps 1-2 i n Visit D3 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 1)]                |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 2)]                |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 3)]                |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          |                                      | [==>(Pattern 4)]                |           |                              |
| 2                                   |                                                                     | (4) PS1-12CBD                       | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |                          | Pattern 1, Exps 1-2 i n Visit D3 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 1)]                     |                                 |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 2)]                     |                                 |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 3)]                     |                                 |           |                              |
|                                     |                                                                     |                                     |                                  |                               |                          |                    |                          | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                                   |                                                                     | (4) PS1-12CBD                       | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                          |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                                     |                                                                     |                                     |                                  |                               | NSAMP=12                 |                    |                          |                                      | [==>]                           |           |                              |





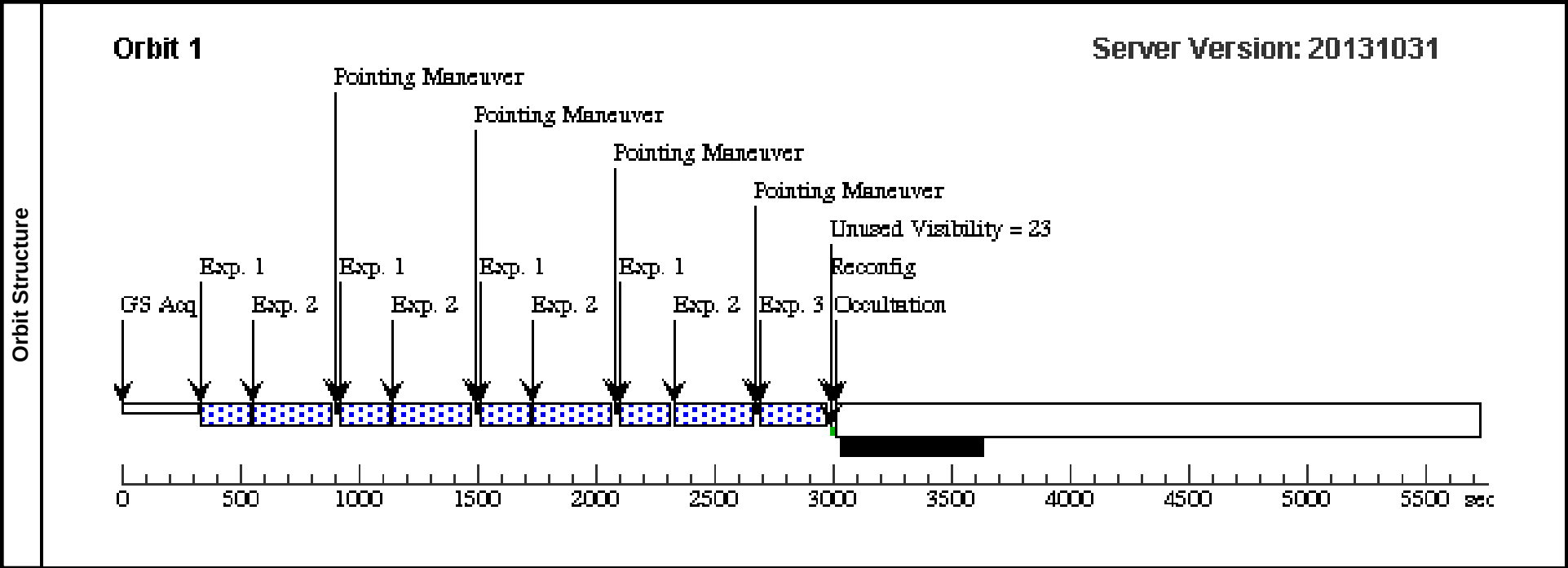
# Proposal 13046 - Visit D4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                     |                                                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
|-------------------------------------|-----------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------------|---------------|-------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                               | Proposal 13046, Visit D4                                              |                                     |                                  |                               |                          |                          |               |                                     |                                 |           | Tue Nov 26 02:15:45 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics                                     |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
|                                     | Scientific Instruments: WFC3/IR                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
|                                     | Special Requirements: SCHED 100%; AFTER D1 BY 180 D TO 360 D; ON HOLD |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
|                                     | Comments: single quide star acq is acceptable                         |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| On Hold Comments: too               |                                                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Patterns                            | #                                                                     | Primary Pattern                     |                                  |                               |                          | Secondary Pattern        |               |                                     |                                 | Exposures |                              |
|                                     | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                          |               |                                     |                                 | (1-2)     |                              |
| Purpose=DITHER                      |                                                                       | Pattern Orientation=18.528          |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Number Of Points=4                  |                                                                       | Angle Between Sides=74.653          |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Point Spacing=0.572                 |                                                                       | Center Pattern=false                |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Line Spacing=0.365                  |                                                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Fixed Targets                       | #                                                                     | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                          | Fluxes        |                                     | Miscellaneous                   |           |                              |
|                                     | (4)                                                                   | PS1-12CBD                           | RA: 23 33 25.4420 (353.3560083d) |                               |                          |                          | V=23          |                                     | Reference Frame: ICRS           |           |                              |
|                                     | Dec: +00 18 37.77 (.31049d)                                           |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Equinox: J2000                      |                                                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Comments: PS1-12cbd (2012-K-450082) |                                                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |
| Exposures                           | #                                                                     | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.             | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                     | 1                                                                     |                                     | (4) PS1-12CBD                    | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25;       |               | Pattern 1, Exps 1-2 in Visit D4 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               |                                     | [==>(Pattern 1)]                |           |                              |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               |                                     | [==>(Pattern 2)]                |           |                              |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               |                                     | [==>(Pattern 3)]                |           |                              |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               |                                     | [==>(Pattern 4)]                |           |                              |
| 2                                   |                                                                       | (4) PS1-12CBD                       | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25        |               | Pattern 1, Exps 1-2 in Visit D4 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               | [==>(Pattern 1)]                    |                                 |           |                              |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               | [==>(Pattern 2)]                    |                                 |           |                              |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               | [==>(Pattern 3)]                    |                                 |           |                              |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               | [==>(Pattern 4)]                    |                                 |           |                              |
| 3                                   |                                                                       | (4) PS1-12CBD                       | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       | GS ACQ SCENARI O BASE1B3 |               |                                     | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                                     |                                                                       |                                     |                                  |                               |                          |                          |               | [==>]                               |                                 |           |                              |
| NSAMP=12                            |                                                                       |                                     |                                  |                               |                          |                          |               |                                     |                                 |           |                              |



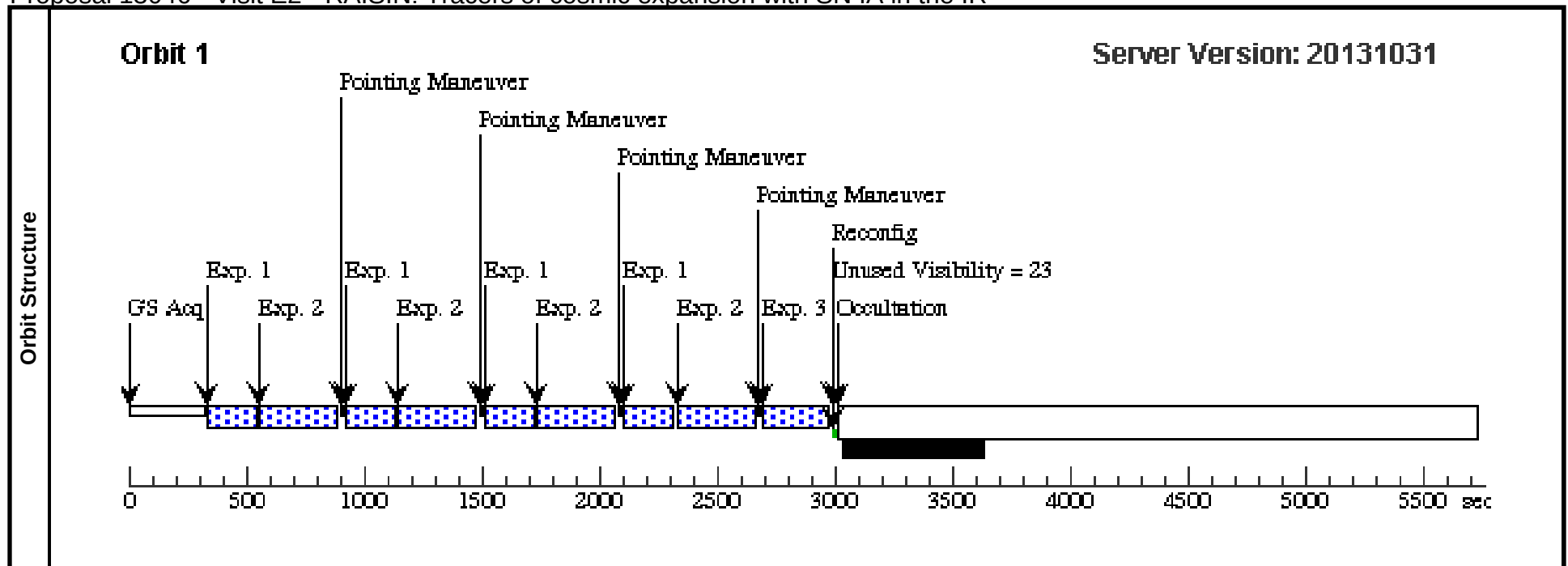
# Proposal 13046 - Visit E1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|-------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------|-------------------------------|--------------------------|--------------------|--------------------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|--|--|
| Visit                   | Proposal 13046, Visit E1                                                                         |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           | Tue Nov 26 02:15:46 GMT 2013 |  |  |
|                         | Diagnostic Status: No Diagnostics                                                                |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|                         | Scientific Instruments: WFC3/IR                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|                         | Special Requirements: SCHED 100%; BETWEEN 20-JAN-2013:00:00:00 AND 30-JAN-2013:00:00:00; ON HOLD |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|                         | Comments: single quide star acq is acceptable                                                    |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| On Hold Comments: too   |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Patterns                | #                                                                                                | Primary Pattern                     |                                 |                               |                          | Secondary Pattern  |                                      |                                      |                                 | Exposures |                              |  |  |
|                         | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                 | Coordinate Frame=POS-TARG     |                          |                    |                                      |                                      |                                 | (1-2)     |                              |  |  |
| Purpose=DITHER          |                                                                                                  | Pattern Orientation=18.528          |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Number Of Points=4      |                                                                                                  | Angle Between Sides=74.653          |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Point Spacing=0.572     |                                                                                                  | Center Pattern=false                |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Line Spacing=0.365      |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Fixed Targets           | #                                                                                                | Name                                | Target Coordinates              |                               | Targ. Coord. Corrections |                    | Fluxes                               |                                      | Miscellaneous                   |           |                              |  |  |
|                         | (5)                                                                                              | PS1-A470110                         | RA: 03 28 16.9360 (52.0705667d) |                               |                          |                    | V=23                                 |                                      | Reference Frame: ICRS           |           |                              |  |  |
|                         | Dec: -28 37 23.98 (-28.62333d)                                                                   |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Equinox: J2000          |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Comments: 2013-A-470110 |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Exposures               | #                                                                                                | Label                               | Target                          | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                        | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |  |
|                         | 1                                                                                                |                                     | (5) PS1-A470110                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                              | Pattern 1, Exps 1-2 i n Visit E1 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      | [==>(Pattern 1)]                |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      | [==>(Pattern 2)]                |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      | [==>(Pattern 3)]                |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      | [==>(Pattern 4)]                |           |                              |  |  |
| 2                       |                                                                                                  | (5) PS1-A470110                     | WFC3/IR, MULTIACCUM, IRSUB512   | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 i n Visit E1 (1) | 321.750541 Secs (1287.002 Secs)      |                                 |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      | [==>(Pattern 1)]                     |                                 |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      | [==>(Pattern 2)]                     |                                 |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      | [==>(Pattern 3)]                     |                                 |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      | [==>(Pattern 4)]                     |                                 |           |                              |  |  |
| 3                       |                                                                                                  | (5) PS1-A470110                     | WFC3/IR, MULTIACCUM, IRSUB512   | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                      |                                      | 252.986788 Secs (252.987 Secs)  |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      | [==>]                           |           |                              |  |  |
|                         |                                                                                                  |                                     |                                 |                               |                          |                    |                                      |                                      |                                 |           | [1]                          |  |  |



# Proposal 13046 - Visit E2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

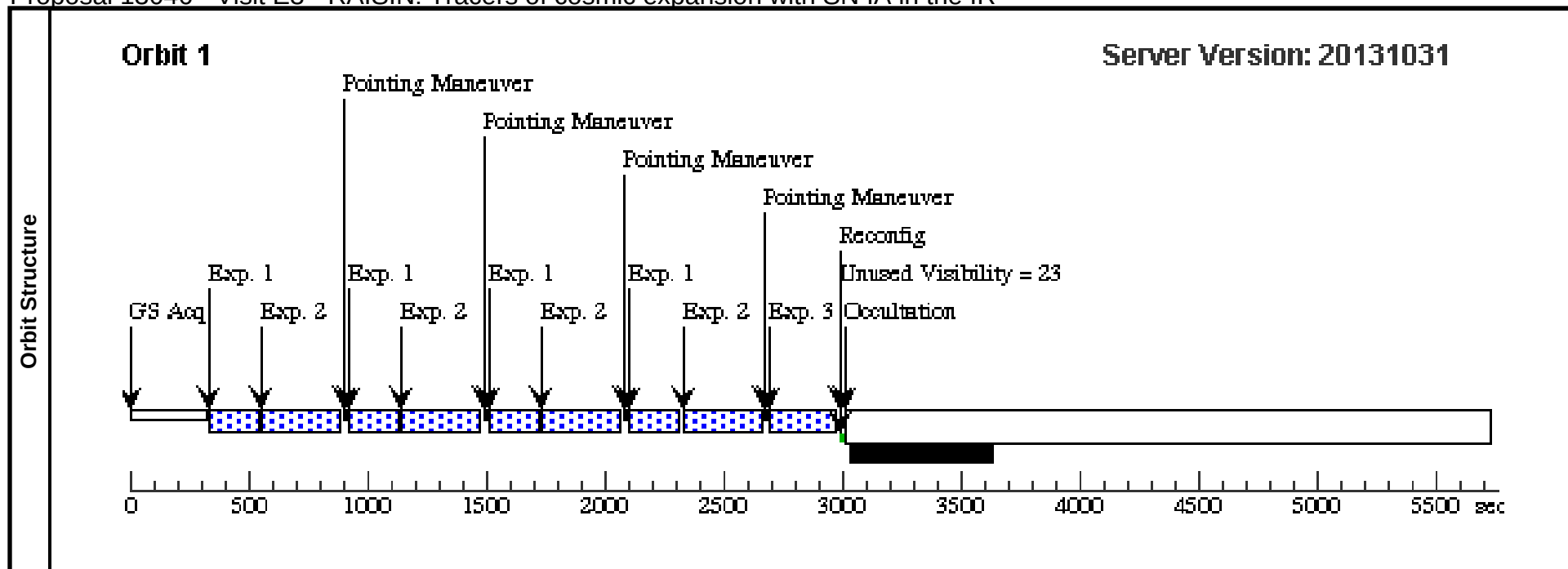
|                       |                                                                   |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-----------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit E2                                          |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:47 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; AFTER E1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                     |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                   |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns              | #                                                                 | Primary Pattern                                                                                                          |                 |                                                                                     |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                 | Name                                                                                                                     |                 | Target Coordinates                                                                  |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                       | (5)                                                               | PS1-A470110                                                                                                              |                 | RA: 03 28 16.9360 (52.0705667d)<br>Dec: -28 37 23.98 (-28.62333d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-A-470110                                           |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures             | #                                                                 | Label                                                                                                                    | Target          | Config,Mode,Aperture                                                                |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                 |                                                                                                                          | (5) PS1-A470110 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit E2 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                   |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                 |                                                                                                                          | (5) PS1-A470110 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |               | Pattern 1, Exps 1-2 in Visit E2 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                   |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                 |                                                                                                                          | (5) PS1-A470110 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                   |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit E3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

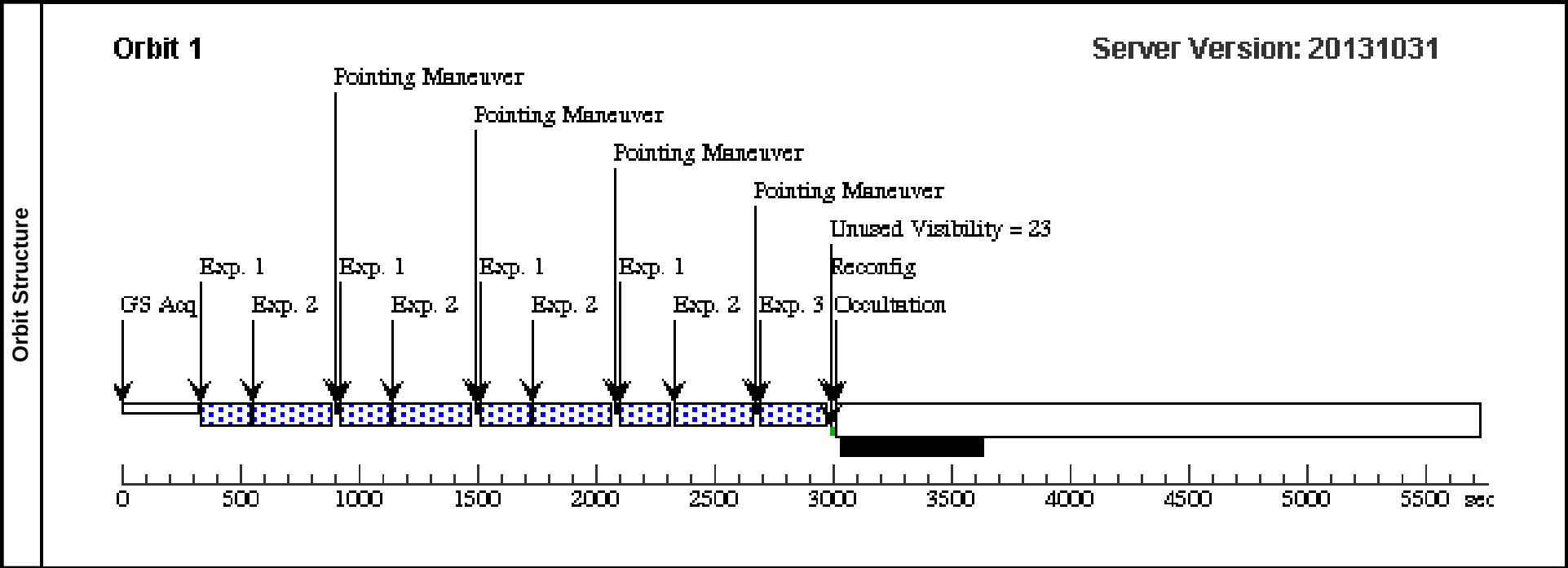
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|-------------------------|---------------------------------------------------------------------|-------------------------------------|---------------------------------|-------------------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|--|
| Visit                   | Proposal 13046, Visit E3                                            |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           | Tue Nov 26 02:15:47 GMT 2013 |  |  |
|                         | Diagnostic Status: No Diagnostics                                   |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Scientific Instruments: WFC3/IR                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Special Requirements: SCHED 100%; AFTER E1 BY 13 D TO 16 D; ON HOLD |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Comments: single quide star acq is acceptable                       |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| On Hold Comments: too   |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Patterns                | #                                                                   | Primary Pattern                     |                                 |                               |                          | Secondary Pattern  |                                     |                                     |                                 | Exposures |                              |  |  |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                 | Coordinate Frame=POS-TARG     |                          |                    |                                     |                                     |                                 | (1-2)     |                              |  |  |
| Purpose=DITHER          |                                                                     | Pattern Orientation=18.528          |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Number Of Points=4      |                                                                     | Angle Between Sides=74.653          |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Point Spacing=0.572     |                                                                     | Center Pattern=false                |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Line Spacing=0.365      |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Fixed Targets           | #                                                                   | Name                                | Target Coordinates              |                               | Targ. Coord. Corrections |                    | Fluxes                              |                                     | Miscellaneous                   |           |                              |  |  |
|                         | (5)                                                                 | PS1-A470110                         | RA: 03 28 16.9360 (52.0705667d) |                               |                          |                    | V=23                                |                                     | Reference Frame: ICRS           |           |                              |  |  |
|                         | Dec: -28 37 23.98 (-28.62333d)                                      |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Equinox: J2000          |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Comments: 2013-A-470110 |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Exposures               | #                                                                   | Label                               | Target                          | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                       | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |  |
|                         | 1                                                                   |                                     | (5) PS1-A470110                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                             | Pattern 1, Exps 1-2 in Visit E3 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     | [==>(Pattern 1)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     | [==>(Pattern 2)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     | [==>(Pattern 3)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     | [==>(Pattern 4)]                |           |                              |  |  |
| 2                       |                                                                     | (5) PS1-A470110                     | WFC3/IR, MULTIACCUM, IRSUB512   | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 in Visit E3 (1) | 321.750541 Secs (1287.002 Secs)     |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     | [==>(Pattern 1)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     | [==>(Pattern 2)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     | [==>(Pattern 3)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     | [==>(Pattern 4)]                    |                                 |           |                              |  |  |
| 3                       |                                                                     | (5) PS1-A470110                     | WFC3/IR, MULTIACCUM, IRSUB512   | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                     |                                     | 252.986788 Secs (252.987 Secs)  |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     | [==>]                           |           |                              |  |  |
|                         |                                                                     |                                     |                                 |                               |                          |                    |                                     |                                     |                                 |           | [1]                          |  |  |





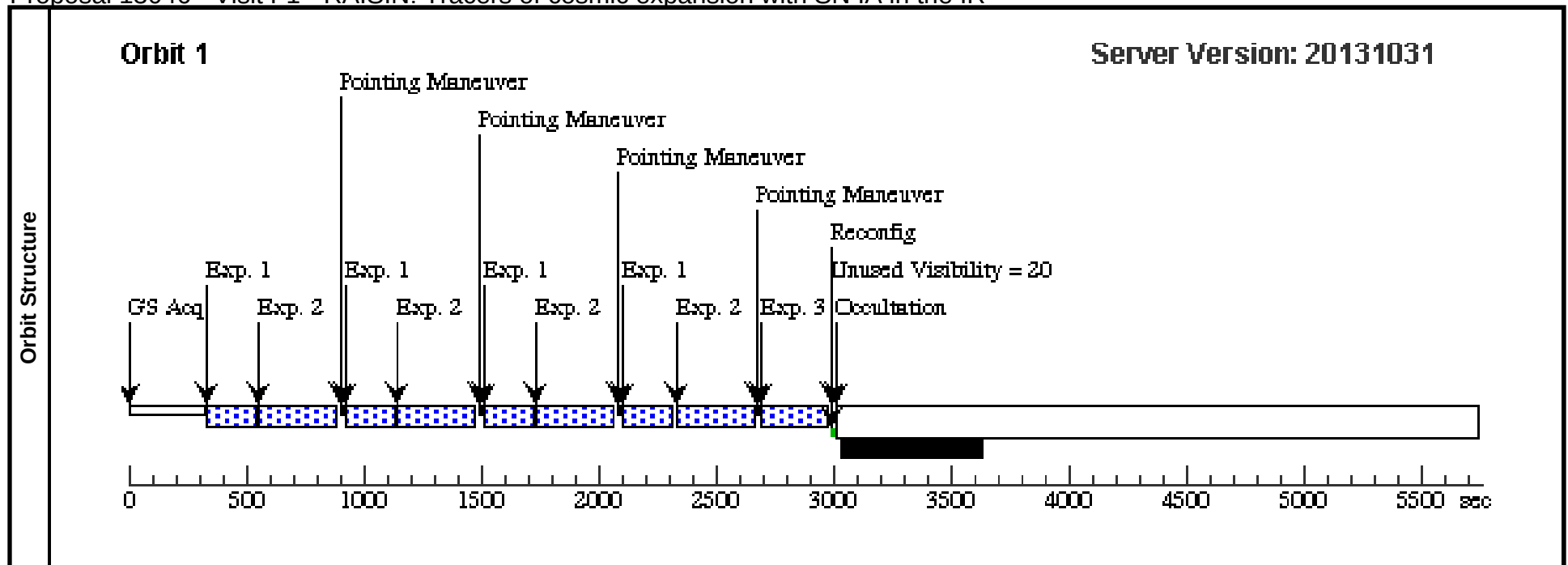
# Proposal 13046 - Visit E4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                       |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit E4                                              |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:48 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; AFTER E1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                         |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                       |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns              | #                                                                     | Primary Pattern                                                                                                          |                 |                                                                                     |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                     | Name                                                                                                                     |                 | Target Coordinates                                                                  |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                       | (5)                                                                   | PS1-A470110                                                                                                              |                 | RA: 03 28 16.9360 (52.0705667d)<br>Dec: -28 37 23.98 (-28.62333d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-A-470110                                               |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures             | #                                                                     | Label                                                                                                                    | Target          | Config,Mode,Aperture                                                                |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                     |                                                                                                                          | (5) PS1-A470110 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit E4 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                       |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                     |                                                                                                                          | (5) PS1-A470110 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit E4 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                       |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                     |                                                                                                                          | (5) PS1-A470110 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                       |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



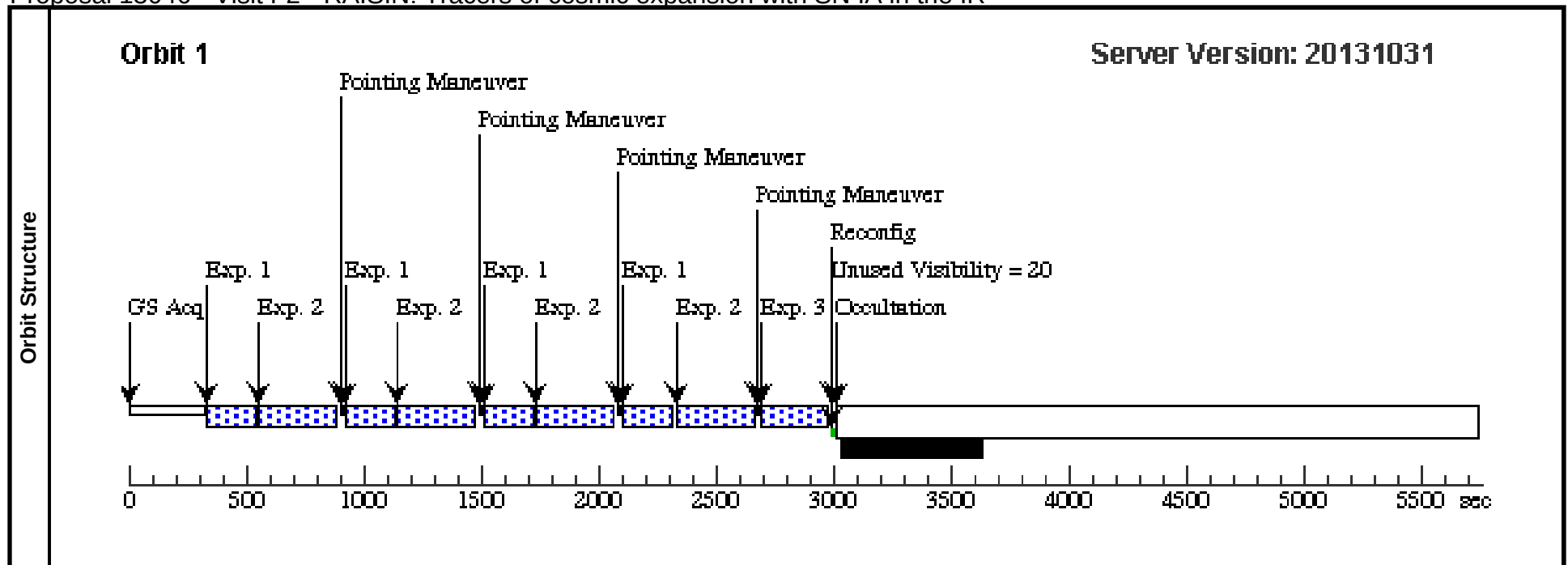
# Proposal 13046 - Visit F1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                  |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-----------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit F1                                                                         |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              | Tue Nov 26 02:15:48 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; BETWEEN 20-JAN-2013:00:00:00 AND 31-JAN-2013:00:00:00; ON HOLD |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                 |                                                                                     |                                                                                                               |                          | Secondary Pattern              |               |                                         |                                                                              | Exposures                    |       |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                         |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     |                 | Target Coordinates                                                                  |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                         | Miscellaneous                                                                |                              |       |
|                       | (6)                                                                                              | PS1-A470041                                                                                                              |                 | RA: 08 45 21.0050 (131.3375208d)<br>Dec: +44 45 17.26 (44.75479d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                         | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-A-470041                                                                          |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         |                                                                              |                              |       |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target          | Config,Mode,Aperture                                                                |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                                                |                                                                                                                          | (6) PS1-A470041 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 i<br>n Visit F1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                                                |                                                                                                                          | (6) PS1-A470041 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 i<br>n Visit F1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                                                |                                                                                                                          | (6) PS1-A470041 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                         | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                     |                                                                                                               |                          |                                |               |                                         | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit F2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

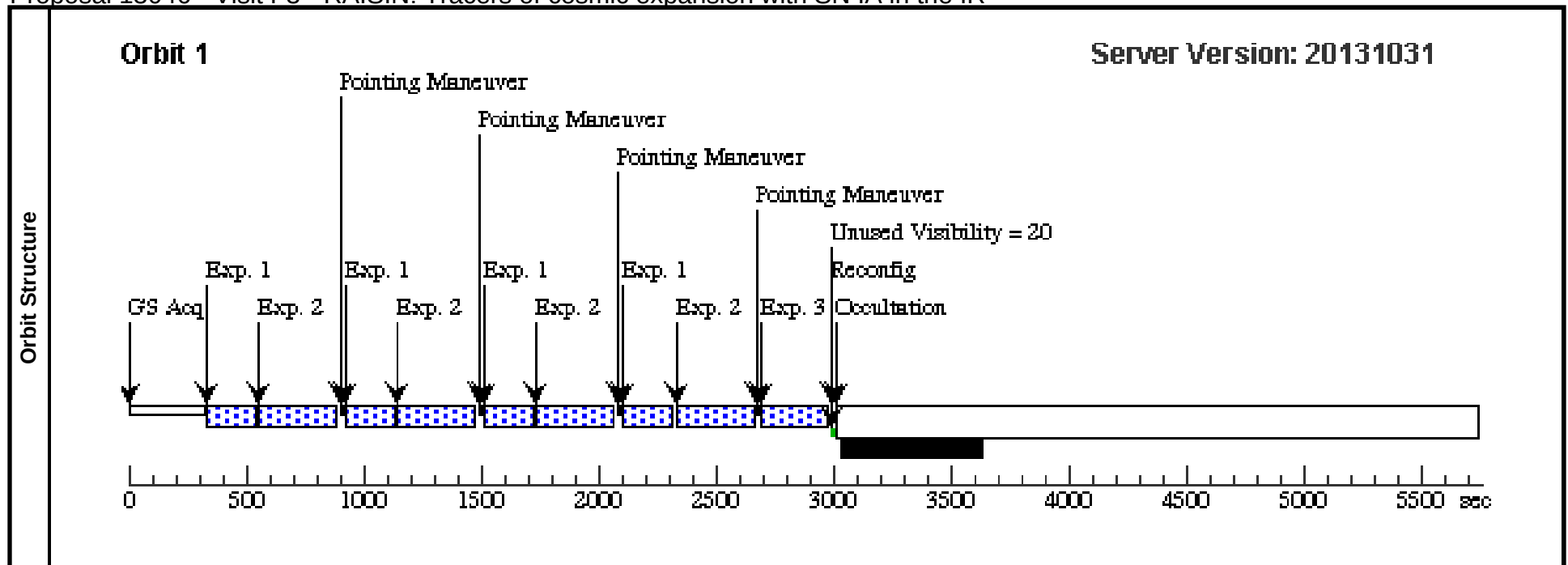
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
|-------------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|--------------------------------------|---------------------------------|-----------|------------------------------|--|
| Visit                   | Proposal 13046, Visit F2                                          |                                     |                                  |                               |                          |                    |               |                                      |                                 |           | Tue Nov 26 02:15:49 GMT 2013 |  |
|                         | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
|                         | Special Requirements: SCHED 100%; AFTER F1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
|                         | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| On Hold Comments: too   |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Patterns                | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                      |                                 | Exposures |                              |  |
|                         | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                      |                                 | (1-2)     |                              |  |
| Purpose=DITHER          |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Number Of Points=4      |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Point Spacing=0.572     |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Line Spacing=0.365      |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Fixed Targets           | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                      | Miscellaneous                   |           |                              |  |
|                         | (6)                                                               | PS1-A470041                         | RA: 08 45 21.0050 (131.3375208d) |                               |                          |                    | V=23          |                                      | Reference Frame: ICRS           |           |                              |  |
|                         | Dec: +44 45 17.26 (44.75479d)                                     |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Equinox: J2000          |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Comments: 2013-A-470041 |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |  |
| Exposures               | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                         | 1                                                                 |                                     | (6) PS1-A470041                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 i n Visit F2 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 1)]                |           | [1]                          |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 3)]                |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 4)]                |           |                              |  |
| 2                       |                                                                   | (6) PS1-A470041                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 i n Visit F2 (1) | 321.750541 Secs (1287.002 Secs) |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                     |                                 | [1]       |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                     |                                 |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                     |                                 |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                     |                                 |           |                              |  |
| 3                       |                                                                   | (6) PS1-A470041                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                      | 252.986788 Secs (252.987 Secs)  |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>]                                |                                 | [1]       |                              |  |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | NSAMP=12                             |                                 |           |                              |  |



# Proposal 13046 - Visit F3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

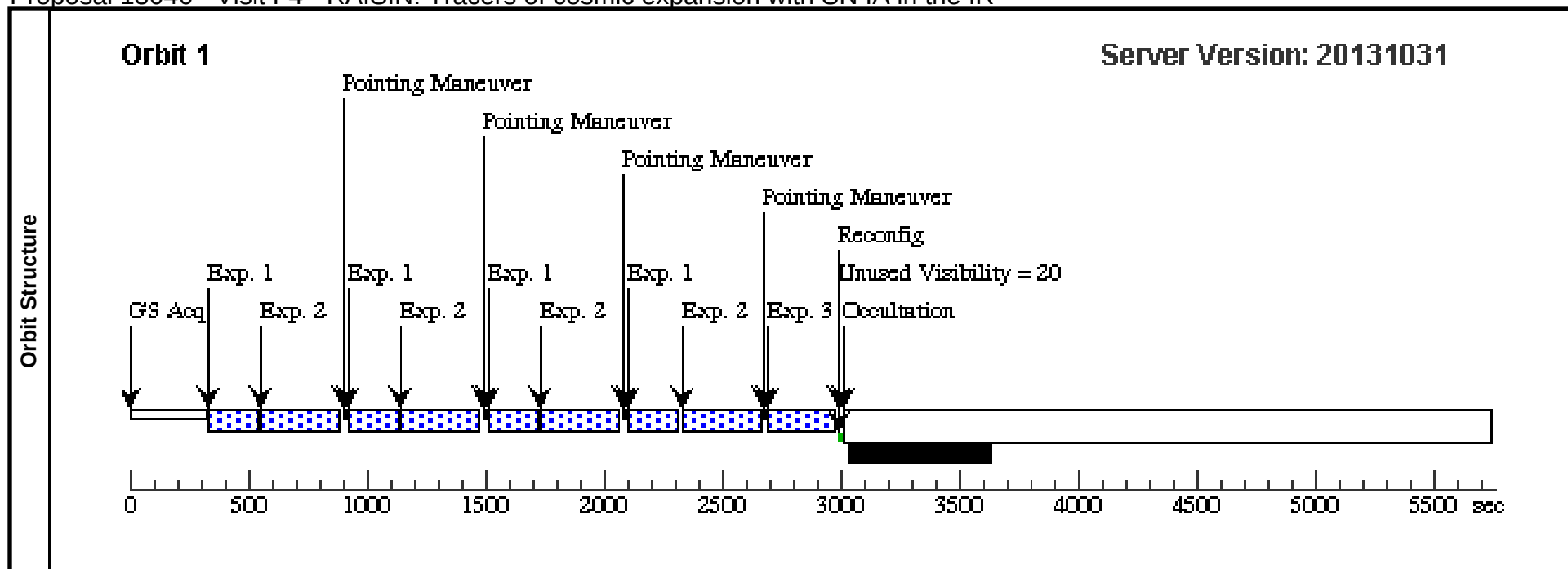
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|-------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|--|
| Visit                   | Proposal 13046, Visit F3                                            |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           | Tue Nov 26 02:15:49 GMT 2013 |  |  |
|                         | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Special Requirements: SCHED 100%; AFTER F1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| On Hold Comments: too   |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Patterns                | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                                     |                                     |                                 | Exposures |                              |  |  |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                                     |                                     |                                 | (1-2)     |                              |  |  |
| Purpose=DITHER          |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Number Of Points=4      |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Point Spacing=0.572     |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Line Spacing=0.365      |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Fixed Targets           | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                              |                                     | Miscellaneous                   |           |                              |  |  |
|                         | (6)                                                                 | PS1-A470041                         | RA: 08 45 21.0050 (131.3375208d) |                               |                          |                    | V=23                                |                                     | Reference Frame: ICRS           |           |                              |  |  |
|                         | Dec: +44 45 17.26 (44.75479d)                                       |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Equinox: J2000          |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Comments: 2013-A-470041 |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Exposures               | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                       | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |  |
|                         | 1                                                                   |                                     | (6) PS1-A470041                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                             | Pattern 1, Exps 1-2 in Visit F3 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 1)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 2)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 3)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 4)]                |           |                              |  |  |
| 2                       |                                                                     | (6) PS1-A470041                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 in Visit F3 (1) | 321.750541 Secs (1287.002 Secs)     |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 1)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 2)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 3)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 4)]                    |                                 |           |                              |  |  |
| 3                       |                                                                     | (6) PS1-A470041                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                     |                                     | 252.986788 Secs (252.987 Secs)  |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>]                           |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           | [1]                          |  |  |





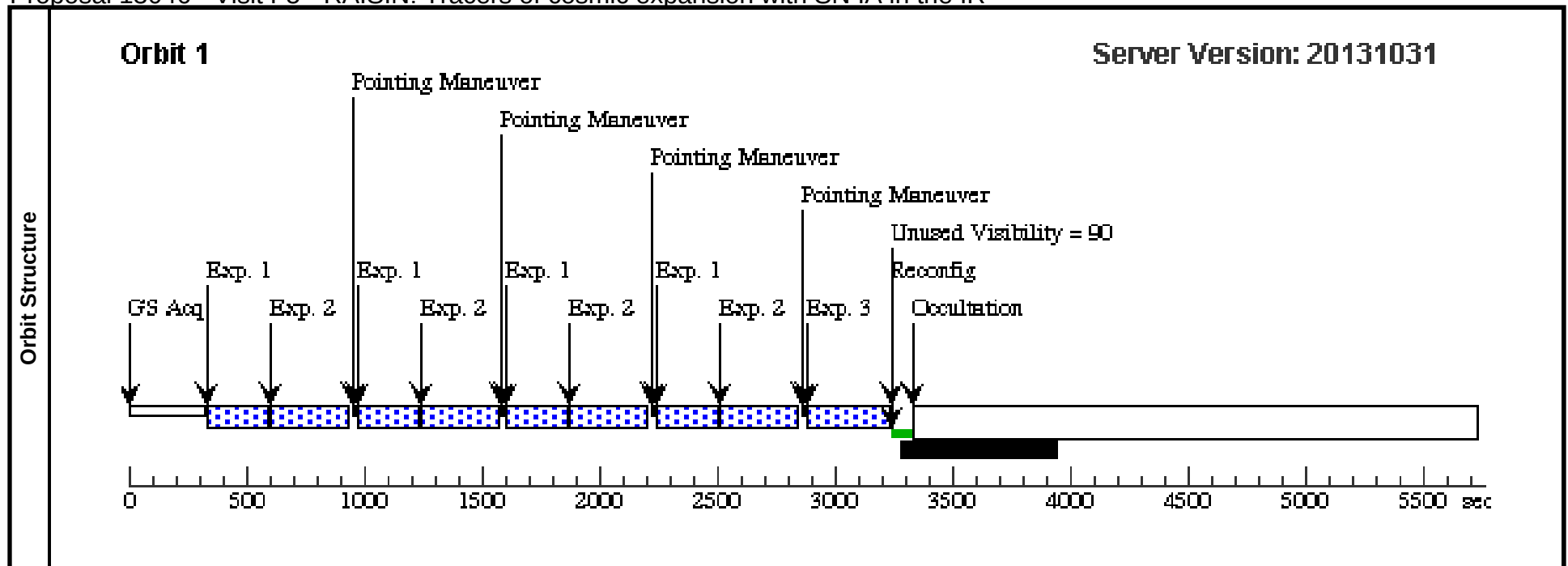
# Proposal 13046 - Visit F4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                               |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|-----------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------|------------------------------------------------------------------------------|--|------------------------------|--|
| Visit                 | Proposal 13046, Visit F4                      |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  | Tue Nov 26 02:15:50 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics             |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Scientific Instruments: WFC3/IR               |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Special Requirements: SCHED 100%; ON HOLD     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Comments: single quide star acq is acceptable |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| On Hold Comments: too |                                               |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Patterns              | #                                             | Primary Pattern                                                                                                          |                                                                                     |                               |                                                                                                               |                                | Secondary Pattern |                                     |                                                                              |  | Exposures                    |  |
|                       | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                     |                                                                              |  | (1-2)                        |  |
| Fixed Targets         | #                                             | Name                                                                                                                     | Target Coordinates                                                                  |                               | Targ. Coord. Corrections                                                                                      |                                | Fluxes            |                                     | Miscellaneous                                                                |  |                              |  |
|                       | (6)                                           | PS1-A470041                                                                                                              | RA: 08 45 21.0050 (131.3375208d)<br>Dec: +44 45 17.26 (44.75479d)<br>Equinox: J2000 |                               |                                                                                                               |                                | V=23              |                                     | Reference Frame: ICRS                                                        |  |                              |  |
|                       | Comments: 2013-A-470041                       |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Exposures             | #                                             | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |  | Orbit                        |  |
|                       | 1                                             |                                                                                                                          | (6) PS1-A470041                                                                     | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 in Visit F4 (1) | 184.223035 Secs (736.892 Secs)                                               |  |                              |  |
|                       |                                               |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 2                                             |                                                                                                                          | (6) PS1-A470041                                                                     | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 in Visit F4 (1) | 321.750541 Secs (1287.002 Secs)                                              |  |                              |  |
|                       |                                               |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 3                                             |                                                                                                                          | (6) PS1-A470041                                                                     | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                     | 252.986788 Secs (252.987 Secs)                                               |  |                              |  |
|                       |                                               |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     | [==>]                                                                        |  | [1]                          |  |



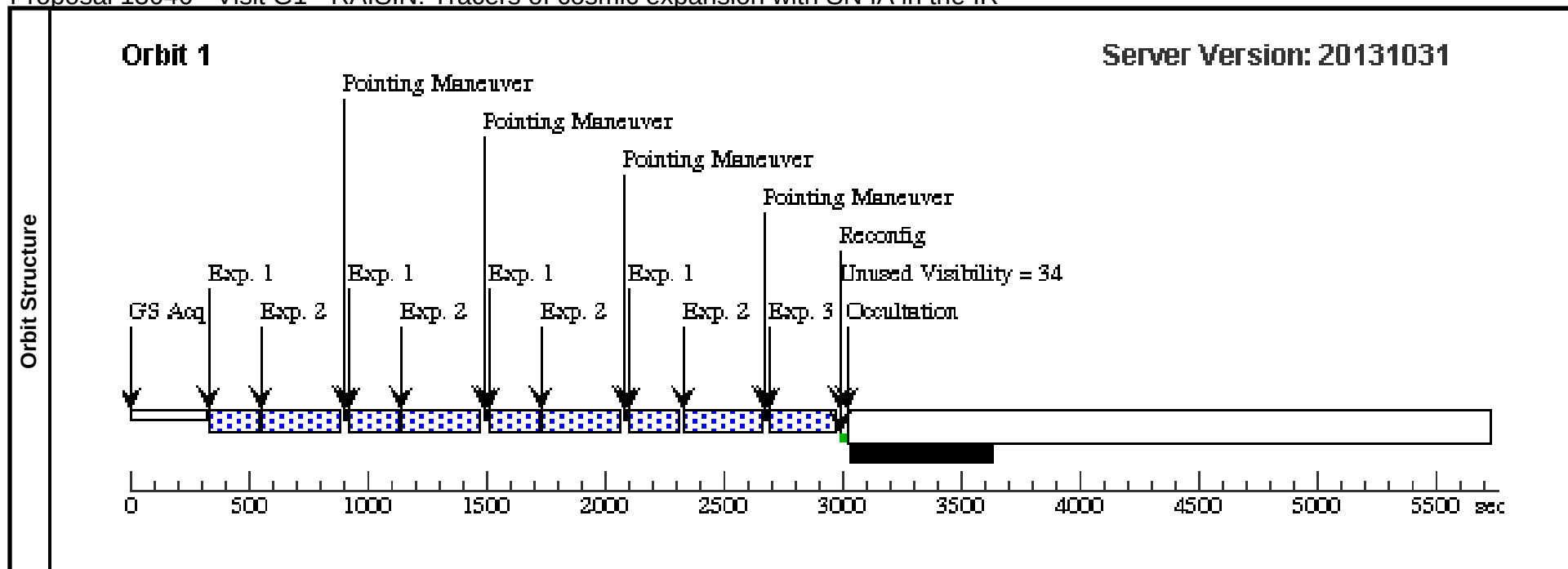
# Proposal 13046 - Visit F5 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|--|
| Visit                   | Proposal 13046, Visit F5                                                                                                                            |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           | Tue Nov 26 02:15:50 GMT 2013 |  |
|                         | Diagnostic Status: Warning                                                                                                                          |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
|                         | Special Requirements: BETWEEN 01-DEC-2013:00:00:00 AND 31-MAR-2014:00:00:00; ON HOLD                                                                |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
|                         | Comments: single quide star acq is acceptable                                                                                                       |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
| On Hold Comments: too   |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
| Diagnostics             | (Visit F5) Warning (Form): The proposal is part of a cycle 20 large program (100 orbits or more in one cycle) and so should use Schedulability 100. |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
|                         |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
| Patterns                | #                                                                                                                                                   | Primary Pattern                                                                                                          |                                                                                     |                               |                          | Secondary Pattern                                                                                             |               |                                         |                                                                              | Exposures |                              |  |
|                         | (1)                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                               |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                         |                                                                              | (1-2)     |                              |  |
| Fixed Targets           | #                                                                                                                                                   | Name                                                                                                                     | Target Coordinates                                                                  |                               | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                         | Miscellaneous                                                                |           |                              |  |
|                         | (6)                                                                                                                                                 | PS1-A470041                                                                                                              | RA: 08 45 21.0050 (131.3375208d)<br>Dec: +44 45 17.26 (44.75479d)<br>Equinox: J2000 |                               |                          |                                                                                                               | V=23          |                                         | Reference Frame: ICRS                                                        |           |                              |  |
| Comments: 2013-A-470041 |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         |                                                                              |           |                              |  |
| Exposures               | #                                                                                                                                                   | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |  |
|                         | 1                                                                                                                                                   |                                                                                                                          | (6) PS1-A470041                                                                     | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=11                                                                                |               | Pattern 1, Exps 1-2 i<br>n Visit F5 (1) | 230.065537 Secs (920.262 Secs)                                               |           |                              |  |
|                         |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |  |
|                         | 2                                                                                                                                                   |                                                                                                                          | (6) PS1-A470041                                                                     | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25                                                                                |               | Pattern 1, Exps 1-2 i<br>n Visit F5 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |  |
|                         |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |  |
|                         | 3                                                                                                                                                   |                                                                                                                          | (6) PS1-A470041                                                                     | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=15                                                                                |               |                                         | 321.750541 Secs (321.751 Secs)                                               |           |                              |  |
|                         |                                                                                                                                                     |                                                                                                                          |                                                                                     |                               |                          |                                                                                                               |               |                                         | [==>]                                                                        |           | [1]                          |  |



# Proposal 13046 - Visit G1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

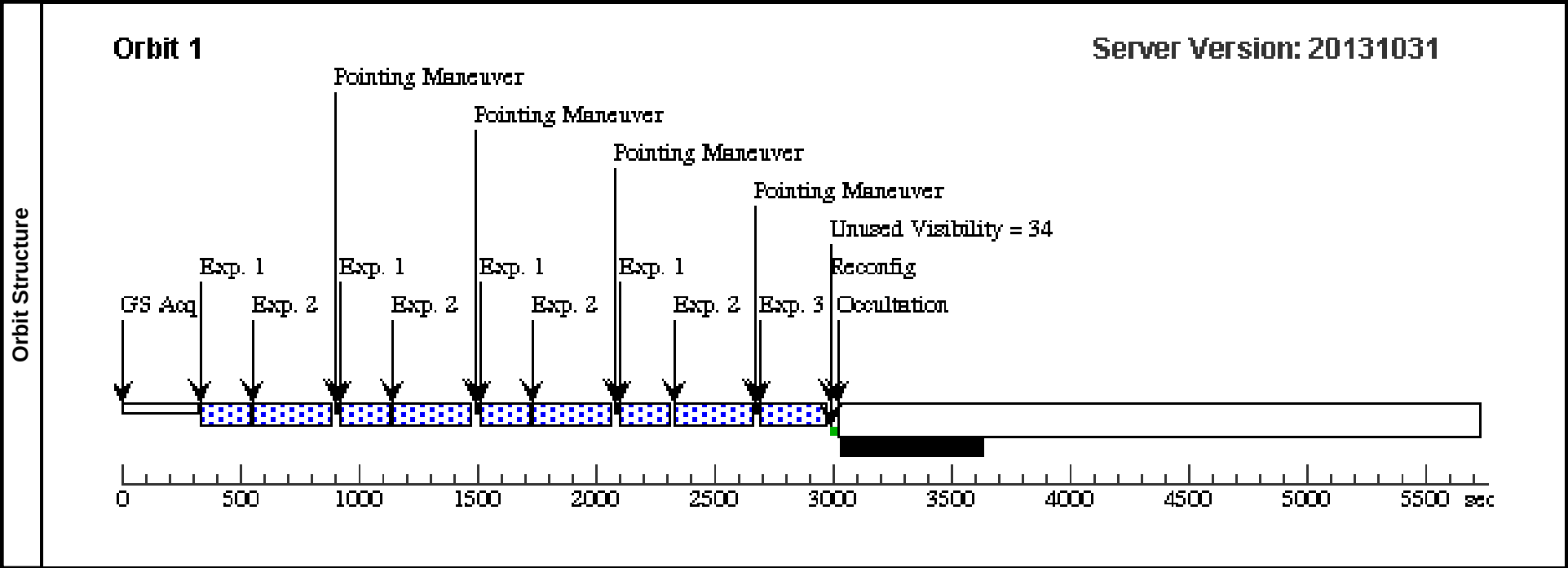
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit G1                                                                         |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:51 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; BETWEEN 20-JAN-2013:00:00:00 AND 31-JAN-2013:00:00:00; ON HOLD |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                 |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     |                 | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                       | (7)                                                                                              | PS1-A470240                                                                                                              |                 | RA: 08 42 53.5080 (130.7229500d)<br>Dec: +45 54 4.91 (45.90136d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-A-470240                                                                          |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target          | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                                                |                                                                                                                          | (7) PS1-A470240 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit G1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                                                |                                                                                                                          | (7) PS1-A470240 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit G1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                                                |                                                                                                                          | (7) PS1-A470240 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |                 |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit G2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

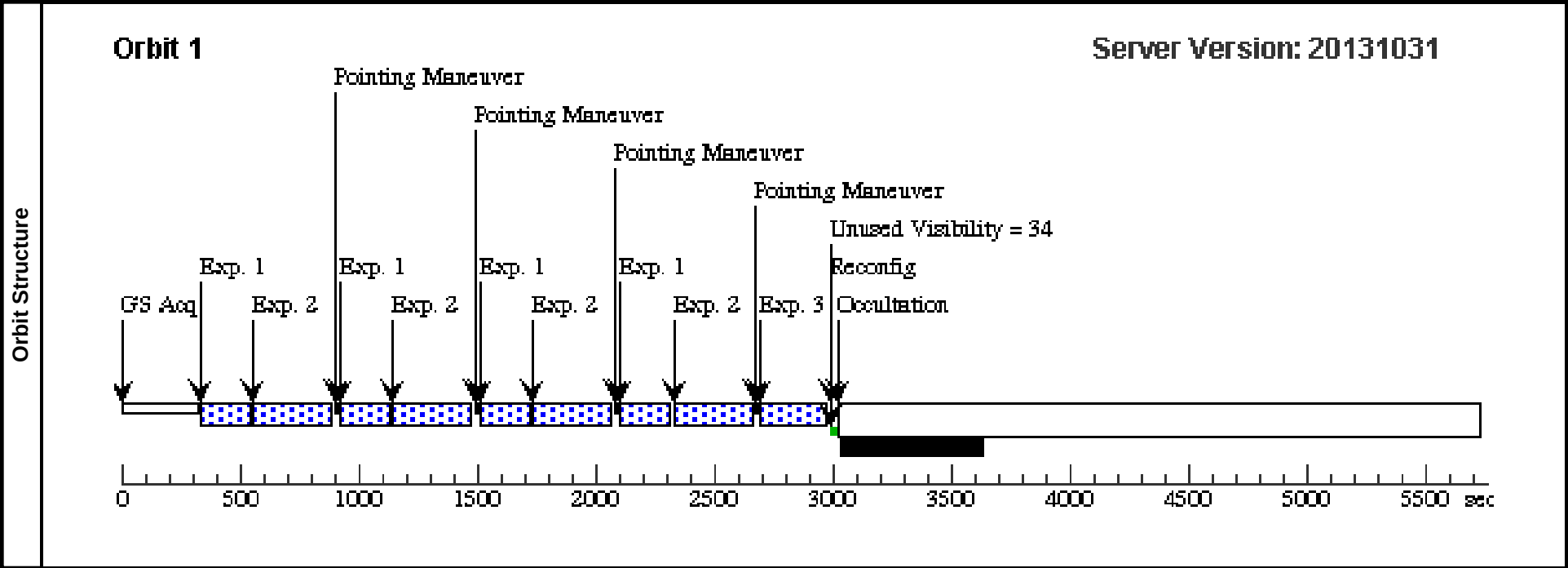
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|-------------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit G2                                          |                                     |                                  |                               |                          |                    |               |                                      |                                 |           | Tue Nov 26 02:15:51 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                         | Special Requirements: SCHED 100%; AFTER G1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| On Hold Comments: too   |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Patterns                | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                      |                                 | Exposures |                              |
|                         | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER          |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Number Of Points=4      |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Point Spacing=0.572     |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Line Spacing=0.365      |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Fixed Targets           | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                      | Miscellaneous                   |           |                              |
|                         | (7)                                                               | PS1-A470240                         | RA: 08 42 53.5080 (130.7229500d) |                               |                          |                    | V=23          |                                      | Reference Frame: ICRS           |           |                              |
|                         | Dec: +45 54 4.91 (45.90136d)                                      |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Equinox: J2000          |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Comments: 2013-A-470240 |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Exposures               | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                         | 1                                                                 |                                     | (7) PS1-A470240                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 i n Visit G2 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 1)]                |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 2)]                |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 3)]                |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 4)]                |           |                              |
| 2                       |                                                                   | (7) PS1-A470240                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 i n Visit G2 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                     |                                 |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                     |                                 |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                     |                                 |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                       |                                                                   | (7) PS1-A470240                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                         |                                                                   |                                     |                                  |                               |                          |                    |               | [==>]                                |                                 |           |                              |





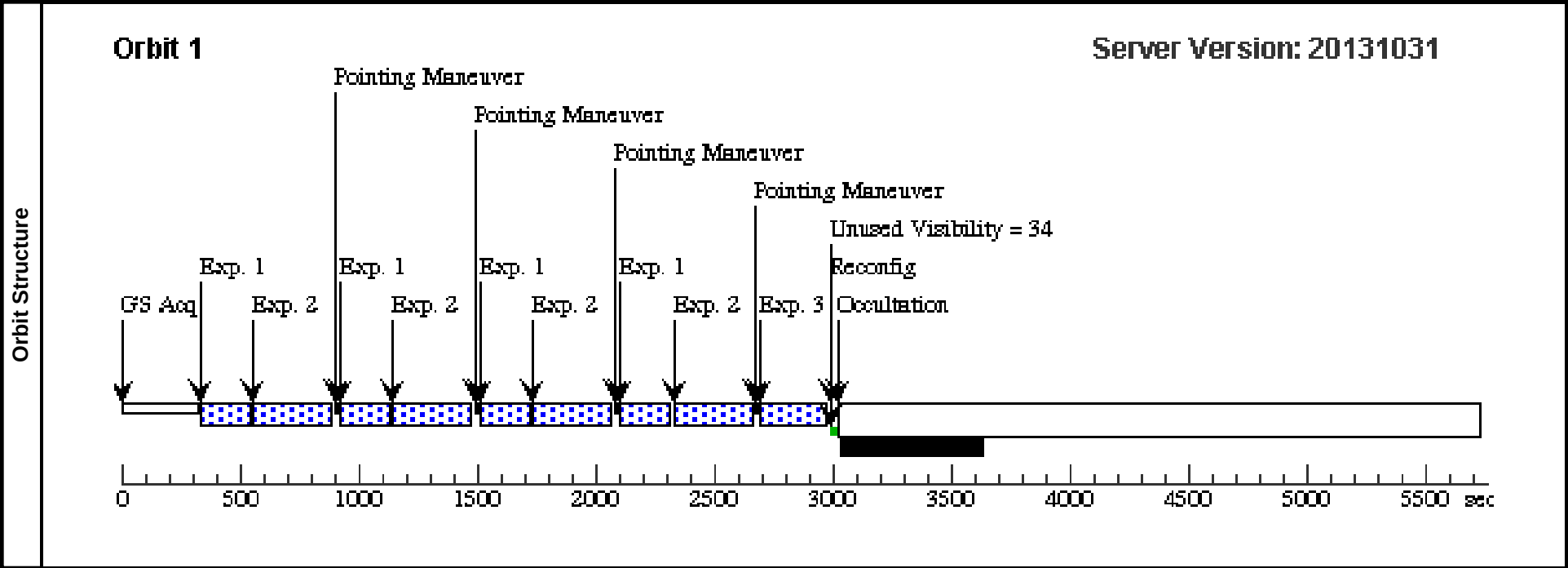
# Proposal 13046 - Visit G3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|-------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|--|
| Visit                   | Proposal 13046, Visit G3                                            |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           | Tue Nov 26 02:15:52 GMT 2013 |  |  |
|                         | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Special Requirements: SCHED 100%; AFTER G1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                         | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| On Hold Comments: too   |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Patterns                | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                                     |                                     |                                 | Exposures |                              |  |  |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                                     |                                     |                                 | (1-2)     |                              |  |  |
| Purpose=DITHER          |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Number Of Points=4      |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Point Spacing=0.572     |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Line Spacing=0.365      |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Fixed Targets           | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                              |                                     | Miscellaneous                   |           |                              |  |  |
|                         | (7)                                                                 | PS1-A470240                         | RA: 08 42 53.5080 (130.7229500d) |                               |                          |                    | V=23                                |                                     | Reference Frame: ICRS           |           |                              |  |  |
|                         | Dec: +45 54 4.91 (45.90136d)                                        |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Equinox: J2000          |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Comments: 2013-A-470240 |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Exposures               | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                       | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |  |
|                         | 1                                                                   |                                     | (7) PS1-A470240                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                             | Pattern 1, Exps 1-2 in Visit G3 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 1)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 2)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 3)]                |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 4)]                |           |                              |  |  |
| 2                       |                                                                     | (7) PS1-A470240                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 in Visit G3 (1) | 321.750541 Secs (1287.002 Secs)     |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 1)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 2)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 3)]                    |                                 |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 4)]                    |                                 |           |                              |  |  |
| 3                       |                                                                     | (7) PS1-A470240                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                     |                                     | 252.986788 Secs (252.987 Secs)  |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>]                           |           |                              |  |  |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           | [1]                          |  |  |



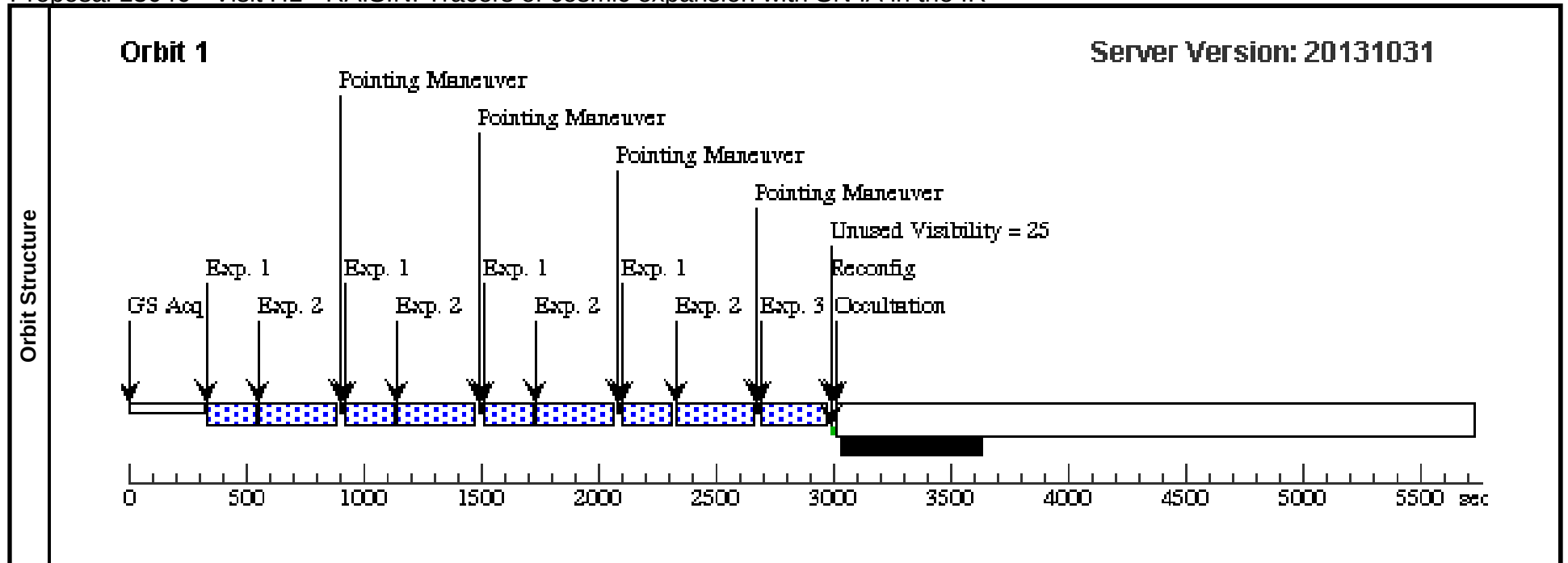
# Proposal 13046 - Visit G4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|-------------------------|-----------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit G4                      |                                     |                                  |                               |                          |                    |               |                                      |                                 |           | Tue Nov 26 02:15:53 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics             |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                         | Special Requirements: SCHED 100%; ON HOLD     |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                         | Comments: single quide star acq is acceptable |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| On Hold Comments: too   |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Patterns                | #                                             | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                      |                                 | Exposures |                              |
|                         | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER          |                                               | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Number Of Points=4      |                                               | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Point Spacing=0.572     |                                               | Center Pattern=false                |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Line Spacing=0.365      |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Fixed Targets           | #                                             | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                      | Miscellaneous                   |           |                              |
|                         | (7)                                           | PS1-A470240                         | RA: 08 42 53.5080 (130.7229500d) |                               |                          |                    | V=23          |                                      | Reference Frame: ICRS           |           |                              |
|                         | Dec: +45 54 4.91 (45.90136d)                  |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Equinox: J2000          |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Comments: 2013-A-470240 |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Exposures               | #                                             | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                         | 1                                             |                                     | (7) PS1-A470240                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 i n Visit G4 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                         |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 1)]                |           |                              |
|                         |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 2)]                |           |                              |
|                         |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 3)]                |           |                              |
|                         |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 4)]                |           |                              |
| 2                       |                                               | (7) PS1-A470240                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 i n Visit G4 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                         |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                     |                                 |           |                              |
|                         |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                     |                                 |           |                              |
|                         |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                     |                                 |           |                              |
|                         |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                       |                                               | (7) PS1-A470240                     | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                         |                                               |                                     |                                  |                               |                          |                    |               | [==>]                                |                                 |           |                              |



# Proposal 13046 - Visit H1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

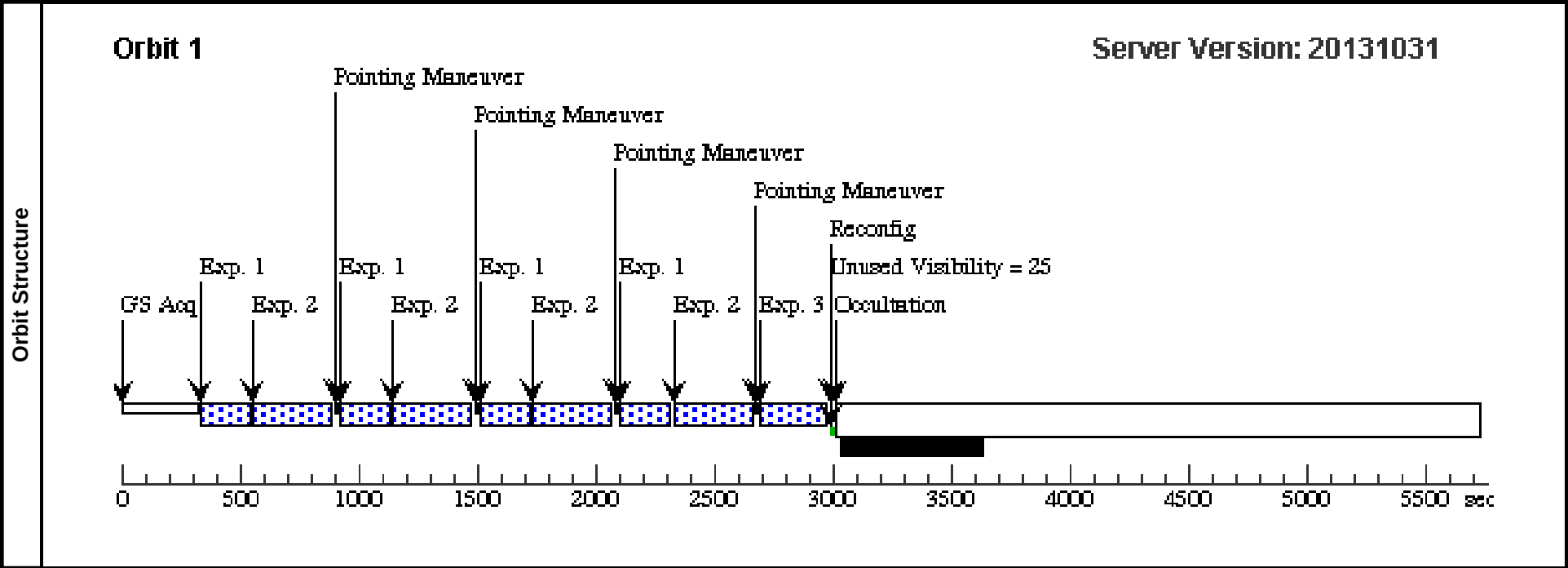
|               |                                                                                                                                              |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              |                              |       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------|--|--------------------------|--------------------------------|---------------|-----------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit         | Proposal 13046, Visit H1                                                                                                                     |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              | Tue Nov 26 02:15:53 GMT 2013 |       |
|               | Diagnostic Status: No Diagnostics                                                                                                            |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              |                              |       |
|               | Scientific Instruments: WFC3/IR                                                                                                              |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              |                              |       |
|               | Special Requirements: SCHED 100%; BETWEEN 17-FEB-2013:00:00:00 AND 06-MAR-2013:00:00:00; ON HOLD                                             |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              |                              |       |
|               | Comments: single quide star acq is acceptable<br>please try to schedule as early in the Between window as possible.<br>On Hold Comments: too |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              |                              |       |
| Patterns      | #                                                                                                                                            | Primary Pattern                                                                                                          |              |                                                                                                               |  | Secondary Pattern        |                                |               |                                         | Exposures                                                                    |                              |       |
|               | (1)                                                                                                                                          | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |              | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |  |                          |                                |               |                                         | (1-2)                                                                        |                              |       |
| Fixed Targets | #                                                                                                                                            | Name                                                                                                                     |              | Target Coordinates                                                                                            |  | Targ. Coord. Corrections |                                | Fluxes        |                                         | Miscellaneous                                                                |                              |       |
|               | (8)                                                                                                                                          | PS1-13QQ                                                                                                                 |              | RA: 09 58 10.0260 (149.5417750d)<br>Dec: +01 21 50.79 (1.36411d)<br>Equinox: J2000                            |  |                          |                                | V=23          |                                         | Reference Frame: ICRS                                                        |                              |       |
|               | Comments: PS1-13qq (2013-B-480794)                                                                                                           |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         |                                                                              |                              |       |
| Exposures     | #                                                                                                                                            | Label                                                                                                                    | Target       | Config,Mode,Aperture                                                                                          |  | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|               | 1                                                                                                                                            |                                                                                                                          | (8) PS1-13QQ | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 i<br>n Visit H1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|               |                                                                                                                                              |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|               | 2                                                                                                                                            |                                                                                                                          | (8) PS1-13QQ | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 i<br>n Visit H1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|               |                                                                                                                                              |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|               | 3                                                                                                                                            |                                                                                                                          | (8) PS1-13QQ | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                         | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|               |                                                                                                                                              |                                                                                                                          |              |                                                                                                               |  |                          |                                |               |                                         | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit H2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

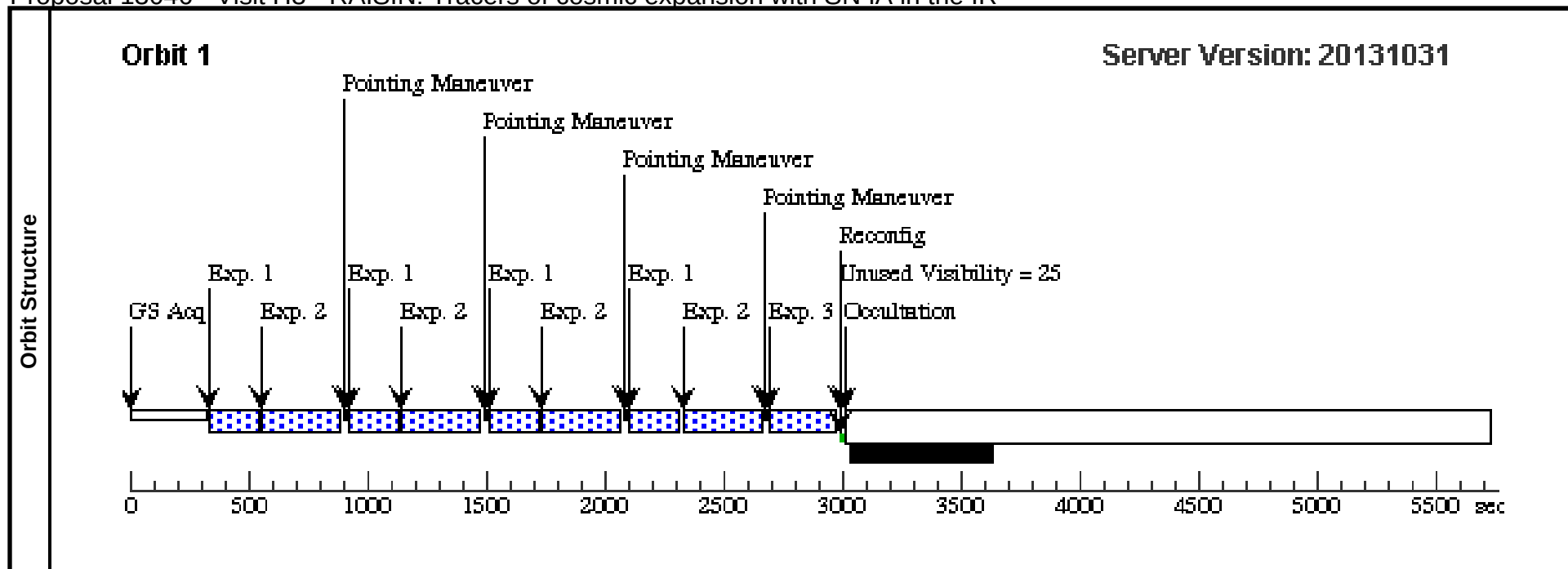
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|------------------------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                              | Proposal 13046, Visit H2                                          |                                     |                                  |                               |                          |                    |               |                                      |                                 |           | Tue Nov 26 02:15:54 GMT 2013 |
|                                    | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                                    | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                                    | Special Requirements: SCHED 100%; AFTER H1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                                    | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| On Hold Comments: too              |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Patterns                           | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                      |                                 | Exposures |                              |
|                                    | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER                     |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Number Of Points=4                 |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Point Spacing=0.572                |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Line Spacing=0.365                 |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Fixed Targets                      | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                      | Miscellaneous                   |           |                              |
|                                    | (8)                                                               | PS1-13QQ                            | RA: 09 58 10.0260 (149.5417750d) |                               |                          |                    | V=23          |                                      | Reference Frame: ICRS           |           |                              |
|                                    | Dec: +01 21 50.79 (1.36411d)                                      |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Equinox: J2000                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Comments: PS1-13qq (2013-B-480794) |                                                                   |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Exposures                          | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                    | 1                                                                 |                                     | (8) PS1-13QQ                     | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 i n Visit H2 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 1)]                |           |                              |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 2)]                |           |                              |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 3)]                |           |                              |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 4)]                |           |                              |
| 2                                  |                                                                   | (8) PS1-13QQ                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 i n Visit H2 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                     |                                 |           |                              |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                     |                                 |           |                              |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                     |                                 |           |                              |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                                  |                                                                   | (8) PS1-13QQ                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                                    |                                                                   |                                     |                                  |                               |                          |                    |               | [==>]                                |                                 |           |                              |





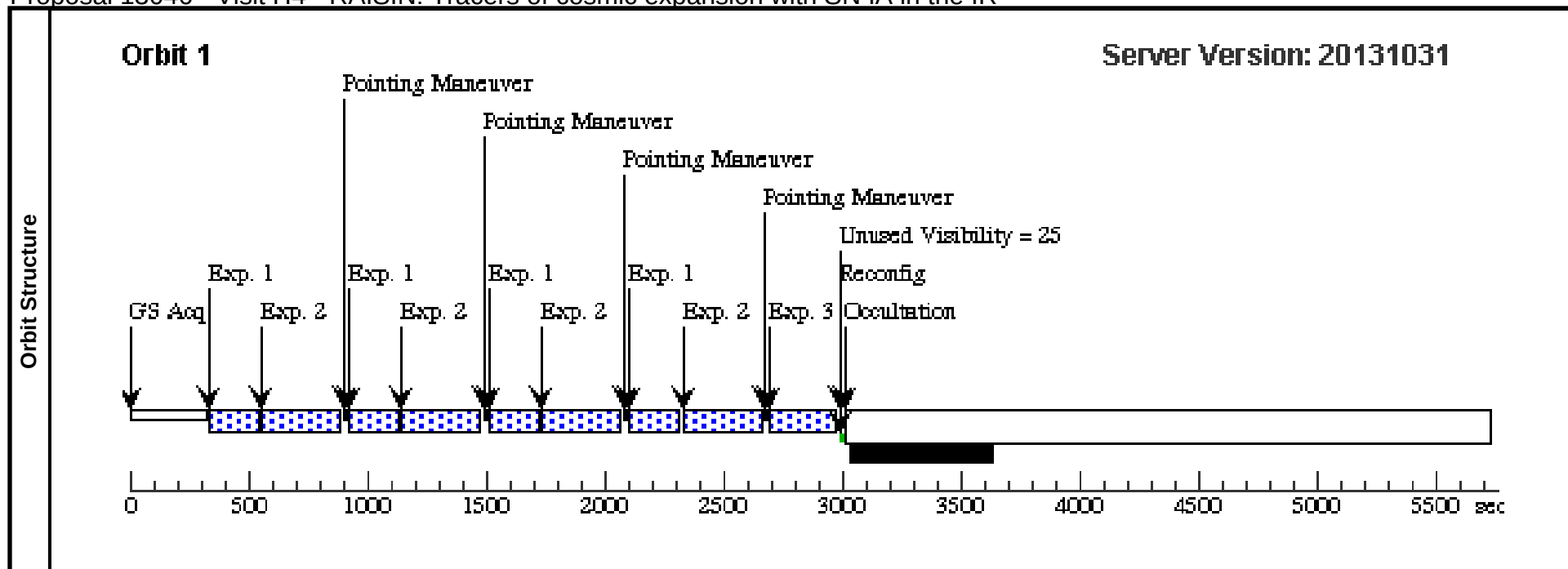
# Proposal 13046 - Visit H3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|------------------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|--|
| Visit                              | Proposal 13046, Visit H3                                            |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           | Tue Nov 26 02:15:54 GMT 2013 |  |  |
|                                    | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                                    | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                                    | Special Requirements: SCHED 100%; AFTER H1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
|                                    | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| On Hold Comments: too              |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Patterns                           | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                                     |                                     |                                 | Exposures |                              |  |  |
|                                    | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                                     |                                     |                                 | (1-2)     |                              |  |  |
| Purpose=DITHER                     |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Number Of Points=4                 |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Point Spacing=0.572                |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Line Spacing=0.365                 |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Fixed Targets                      | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                              |                                     | Miscellaneous                   |           |                              |  |  |
|                                    | (8)                                                                 | PS1-13QQ                            | RA: 09 58 10.0260 (149.5417750d) |                               |                          |                    | V=23                                |                                     | Reference Frame: ICRS           |           |                              |  |  |
|                                    | Dec: +01 21 50.79 (1.36411d)                                        |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Equinox: J2000                     |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Comments: PS1-13qq (2013-B-480794) |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           |                              |  |  |
| Exposures                          | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                       | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |  |
|                                    | 1                                                                   |                                     | (8) PS1-13QQ                     | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                             | Pattern 1, Exps 1-2 in Visit H3 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 1)]                |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 2)]                |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 3)]                |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>(Pattern 4)]                |           |                              |  |  |
| 2                                  |                                                                     | (8) PS1-13QQ                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 in Visit H3 (1) | 321.750541 Secs (1287.002 Secs)     |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 1)]                    |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 2)]                    |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 3)]                    |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     | [==>(Pattern 4)]                    |                                 |           |                              |  |  |
| 3                                  |                                                                     | (8) PS1-13QQ                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                     |                                     | 252.986788 Secs (252.987 Secs)  |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     | [==>]                           |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                     |                                     |                                 |           | [1]                          |  |  |



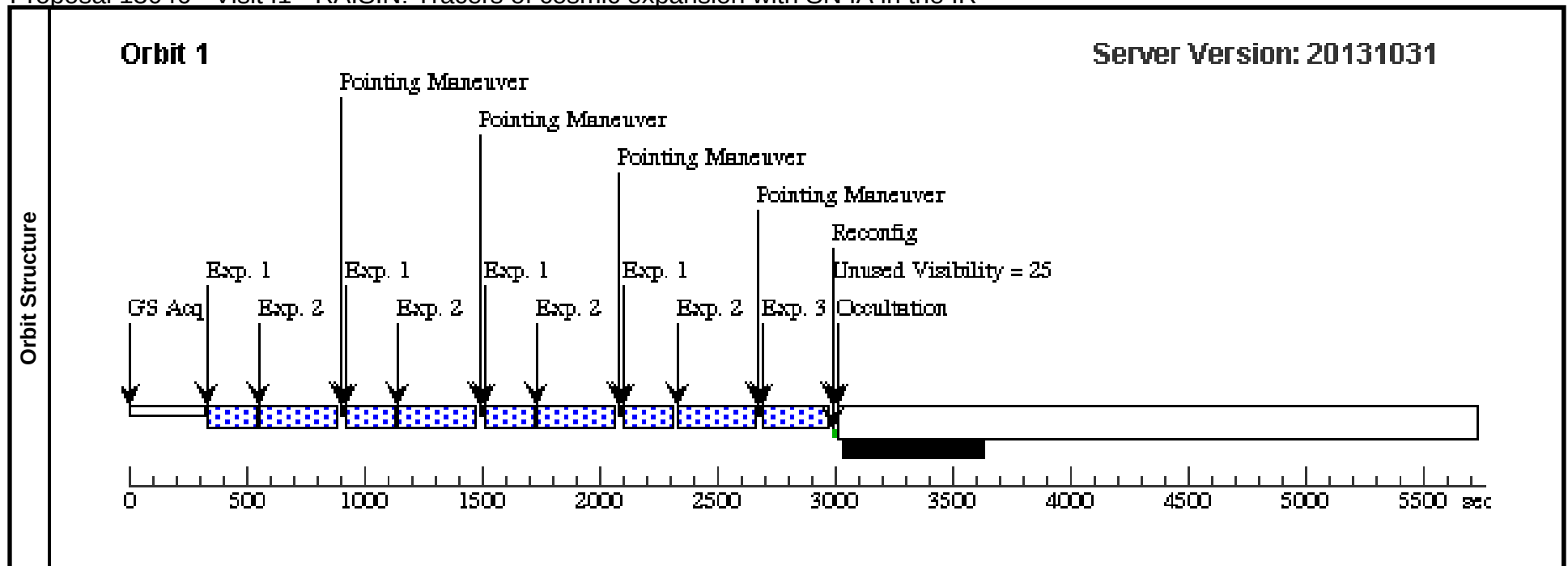
# Proposal 13046 - Visit H4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
|-----------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|--------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit H4                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           | Tue Nov 26 02:15:55 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics             |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; ON HOLD     |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
| On Hold Comments: too |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
| Patterns              | #                                             | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                      |                                                                              | Exposures |                              |
|                       | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                      |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                             | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                      | Miscellaneous                                                                |           |                              |
|                       | (8)                                           | PS1-13QQ                                                                                                                 | RA: 09 58 10.0260 (149.5417750d)<br>Dec: +01 21 50.79 (1.36411d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                      | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: PS1-13qq (2013-B-480794)            |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      |                                                                              |           |                              |
| Exposures             | #                                             | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                             |                                                                                                                          | (8) PS1-13QQ                                                                       | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 i n Visit H4 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                             |                                                                                                                          | (8) PS1-13QQ                                                                       | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 i n Visit H4 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                             |                                                                                                                          | (8) PS1-13QQ                                                                       | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                      | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                      | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit I1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

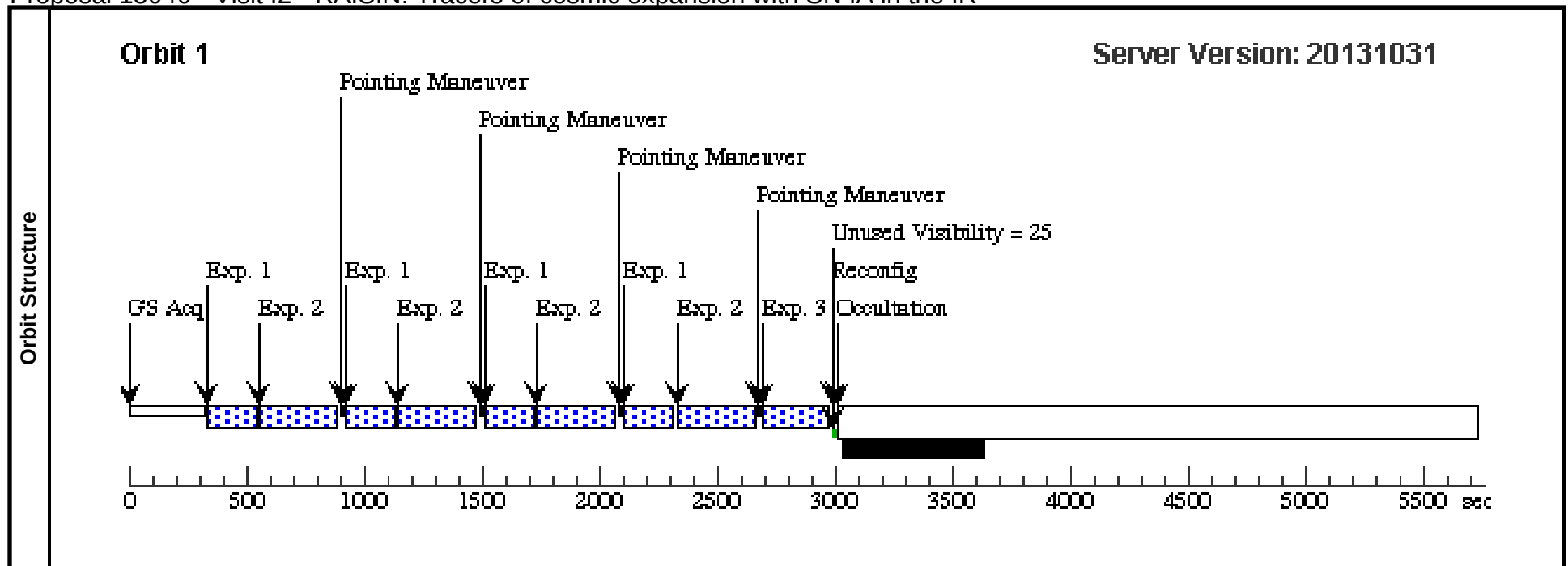
|                       |                                                                                                  |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit I1                                                                         |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:55 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; BETWEEN 24-FEB-2013:00:00:00 AND 07-MAR-2013:00:00:00; ON HOLD |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |              |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |              |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     |              | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                       | (9)                                                                                              | PS1-13LO                                                                                                                 |              | RA: 09 59 12.1050 (149.8004375d)<br>Dec: +03 13 17.65 (3.22157d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=22          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: PS1-13lo (2013-B-480464)                                                               |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target       | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                                                |                                                                                                                          | (9) PS1-13LO | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit I1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                                                |                                                                                                                          | (9) PS1-13LO | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit I1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                                                  |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                                                |                                                                                                                          | (9) PS1-13LO | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |              |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit I2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

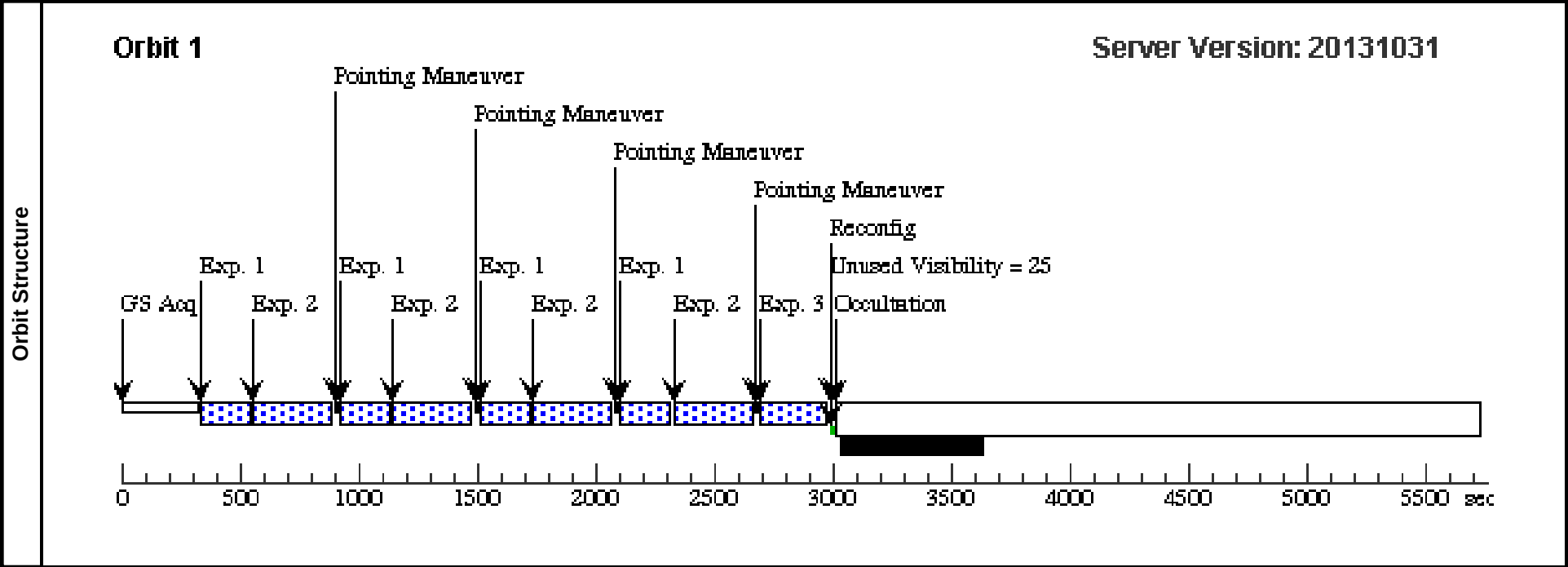
|                       |                                                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
|-----------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-----------------------------------------|------------------------------------------------------------------------------|-----------------------|------------------------------|--|
| Visit                 | Proposal 13046, Visit I2                                          |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       | Tue Nov 26 02:15:56 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
|                       | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
|                       | Special Requirements: SCHED 100%; AFTER I1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
|                       | Comments: single quide star acq is acceptable                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
| On Hold Comments: too |                                                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
| Patterns              | #                                                                 | Primary Pattern                                                                                                          |                                                                                    |                               |                                                                                                               |                                | Secondary Pattern |                                         |                                                                              |                       | Exposures                    |  |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                         |                                                                              |                       | (1-2)                        |  |
| Fixed Targets         | #                                                                 | Name                                                                                                                     | Target Coordinates                                                                 |                               |                                                                                                               | Targ. Coord. Corrections       |                   | Fluxes                                  |                                                                              | Miscellaneous         |                              |  |
|                       | (9)                                                               | PS1-13LO                                                                                                                 | RA: 09 59 12.1050 (149.8004375d)<br>Dec: +03 13 17.65 (3.22157d)<br>Equinox: J2000 |                               |                                                                                                               |                                |                   | V=22                                    |                                                                              | Reference Frame: ICRS |                              |  |
|                       | Comments: PS1-13lo (2013-B-480464)                                |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         |                                                                              |                       |                              |  |
| Exposures             | #                                                                 | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                              |                       | Orbit                        |  |
|                       | 1                                                                 |                                                                                                                          | (9) PS1-13LO                                                                       | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 i<br>n Visit I2 (1) | 184.223035 Secs (736.892 Secs)                                               |                       |                              |  |
|                       |                                                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                       | 2                                                                 |                                                                                                                          | (9) PS1-13LO                                                                       | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 i<br>n Visit I2 (1) | 321.750541 Secs (1287.002 Secs)                                              |                       |                              |  |
|                       |                                                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                       | 3                                                                 |                                                                                                                          | (9) PS1-13LO                                                                       | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                         | 252.986788 Secs (252.987 Secs)                                               |                       |                              |  |
|                       |                                                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                         | [==>]                                                                        |                       | [1]                          |  |





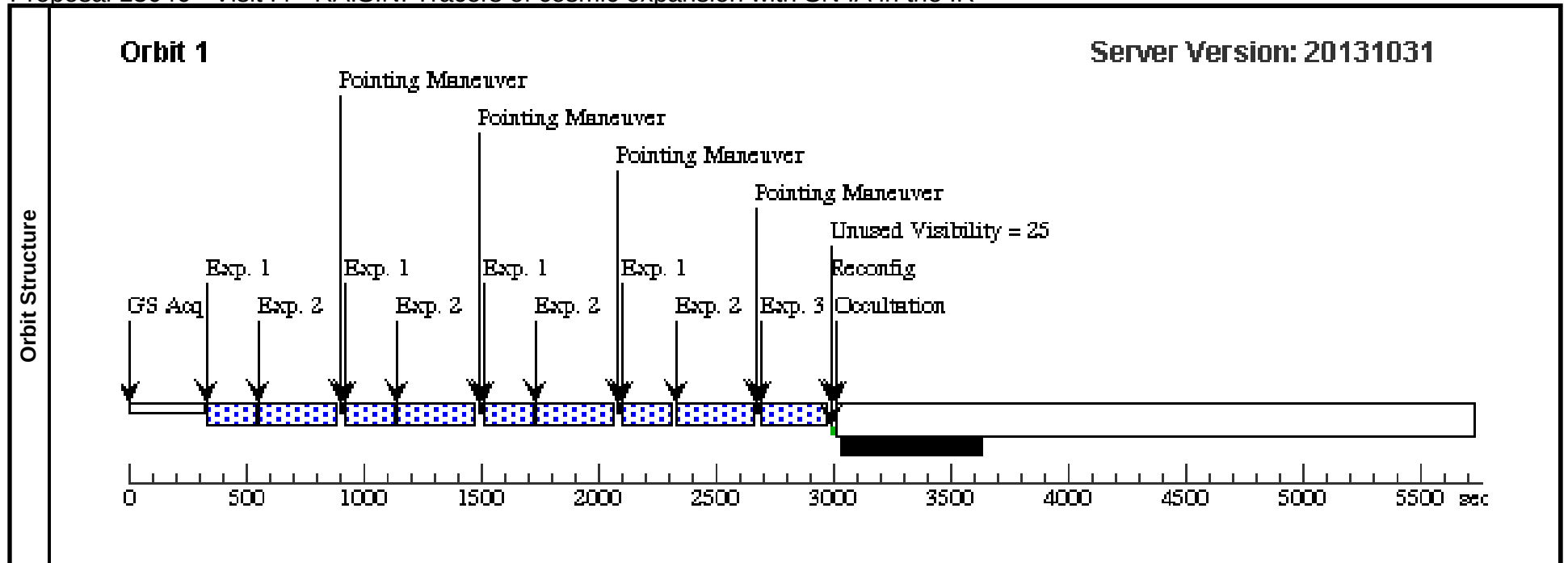
# Proposal 13046 - Visit I3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|------------------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|--------------------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|--|--|
| Visit                              | Proposal 13046, Visit I3                                            |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           | Tue Nov 26 02:15:56 GMT 2013 |  |  |
|                                    | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|                                    | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|                                    | Special Requirements: SCHED 100%; AFTER I1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
|                                    | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| On Hold Comments: too              |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Patterns                           | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                                      |                                      |                                 | Exposures |                              |  |  |
|                                    | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                                      |                                      |                                 | (1-2)     |                              |  |  |
| Purpose=DITHER                     |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Number Of Points=4                 |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Point Spacing=0.572                |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Line Spacing=0.365                 |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Fixed Targets                      | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                               |                                      | Miscellaneous                   |           |                              |  |  |
|                                    | (9)                                                                 | PS1-13LO                            | RA: 09 59 12.1050 (149.8004375d) |                               |                          |                    | V=22                                 |                                      | Reference Frame: ICRS           |           |                              |  |  |
|                                    | Dec: +03 13 17.65 (3.22157d)                                        |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Equinox: J2000                     |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Comments: PS1-13lo (2013-B-480464) |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           |                              |  |  |
| Exposures                          | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.                        | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |  |
|                                    | 1                                                                   |                                     | (9) PS1-13LO                     | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9                              | Pattern 1, Exps 1-2 i n Visit I3 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      | [==>(Pattern 1)]                |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      | [==>(Pattern 2)]                |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      | [==>(Pattern 3)]                |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      | [==>(Pattern 4)]                |           |                              |  |  |
| 2                                  |                                                                     | (9) PS1-13LO                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  | Pattern 1, Exps 1-2 i n Visit I3 (1) | 321.750541 Secs (1287.002 Secs)      |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      | [==>(Pattern 1)]                     |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      | [==>(Pattern 2)]                     |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      | [==>(Pattern 3)]                     |                                 |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      | [==>(Pattern 4)]                     |                                 |           |                              |  |  |
| 3                                  |                                                                     | (9) PS1-13LO                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                                      |                                      | 252.986788 Secs (252.987 Secs)  |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      | [==>]                           |           |                              |  |  |
|                                    |                                                                     |                                     |                                  |                               |                          |                    |                                      |                                      |                                 |           | [1]                          |  |  |



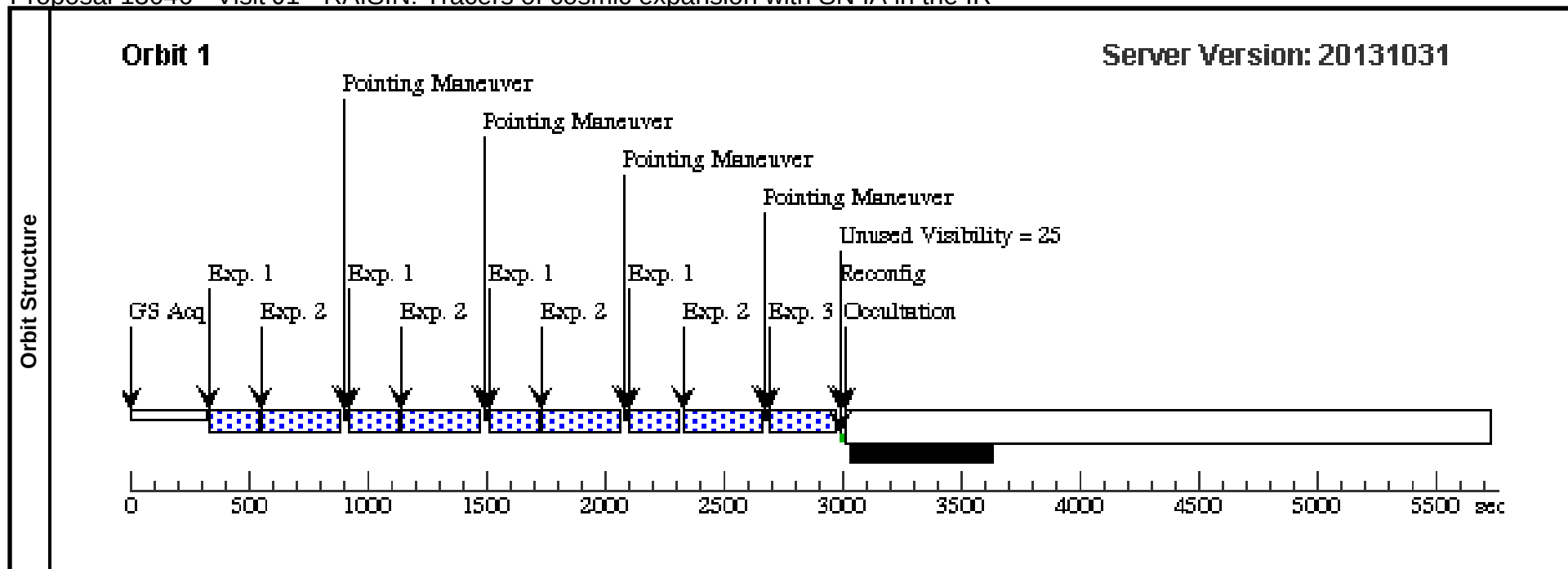
# Proposal 13046 - Visit I4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                    |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|------------------------------------|-----------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                              | Proposal 13046, Visit I4                      |                                     |                                  |                               |                          |                    |               |                                      |                                 |           | Tue Nov 26 02:15:57 GMT 2013 |
|                                    | Diagnostic Status: No Diagnostics             |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                                    | Scientific Instruments: WFC3/IR               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                                    | Special Requirements: SCHED 100%; ON HOLD     |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
|                                    | Comments: single quide star acq is acceptable |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| On Hold Comments: too              |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Patterns                           | #                                             | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                      |                                 | Exposures |                              |
|                                    | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER                     |                                               | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Number Of Points=4                 |                                               | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Point Spacing=0.572                |                                               | Center Pattern=false                |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Line Spacing=0.365                 |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Fixed Targets                      | #                                             | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                      | Miscellaneous                   |           |                              |
|                                    | (9)                                           | PS1-13LO                            | RA: 09 59 12.1050 (149.8004375d) |                               |                          |                    | V=22          |                                      | Reference Frame: ICRS           |           |                              |
|                                    | Dec: +03 13 17.65 (3.22157d)                  |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Equinox: J2000                     |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Comments: PS1-13lo (2013-B-480464) |                                               |                                     |                                  |                               |                          |                    |               |                                      |                                 |           |                              |
| Exposures                          | #                                             | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                    | 1                                             |                                     | (9) PS1-13LO                     | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 i n Visit I4 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                    |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 1)]                |           |                              |
|                                    |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 2)]                |           |                              |
|                                    |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 3)]                |           |                              |
|                                    |                                               |                                     |                                  |                               |                          |                    |               |                                      | [==>(Pattern 4)]                |           |                              |
| 2                                  |                                               | (9) PS1-13LO                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 i n Visit I4 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                    |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                     |                                 |           |                              |
|                                    |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                     |                                 |           |                              |
|                                    |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                     |                                 |           |                              |
|                                    |                                               |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                                  |                                               | (9) PS1-13LO                        | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                                    |                                               |                                     |                                  |                               |                          |                    |               | [==>]                                |                                 |           |                              |



# Proposal 13046 - Visit J1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

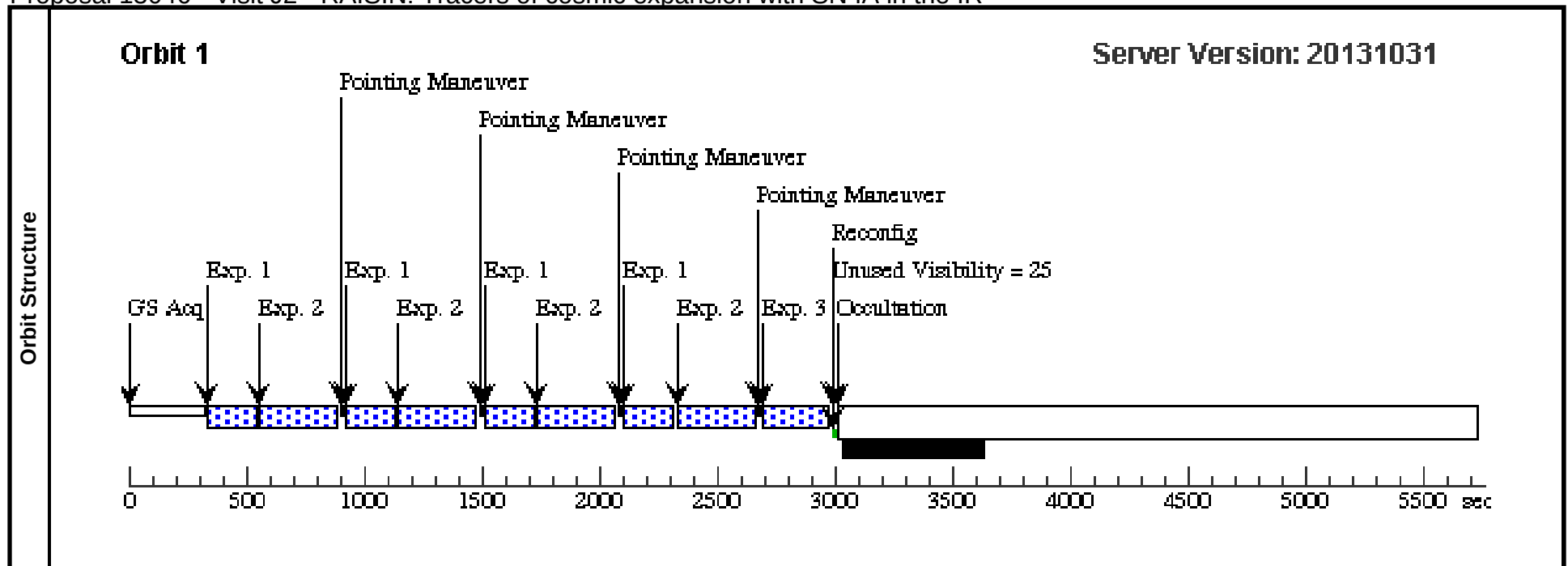
|               |                                                                                                                                              |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------|--|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit         | Proposal 13046, Visit J1                                                                                                                     |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:57 GMT 2013 |       |
|               | Diagnostic Status: No Diagnostics                                                                                                            |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|               | Scientific Instruments: WFC3/IR                                                                                                              |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|               | Special Requirements: SCHED 100%; BETWEEN 17-MAR-2013:00:00:00 AND 27-MAR-2013:00:00:00; ON HOLD                                             |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|               | Comments: single quide star acq is acceptable.<br>please try to schedule as early in the between window as possible<br>On Hold Comments: too |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns      | #                                                                                                                                            | Primary Pattern                                                                                                          |                  |                                                                                                               |  | Secondary Pattern        |                                |               |                                     | Exposures                                                                    |                              |       |
|               | (1)                                                                                                                                          | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                  | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |  |                          |                                |               |                                     | (1-2)                                                                        |                              |       |
| Fixed Targets | #                                                                                                                                            | Name                                                                                                                     |                  | Target Coordinates                                                                                            |  | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|               | (10)                                                                                                                                         | PS1-C490037                                                                                                              |                  | RA: 09 59 49.7270 (149.9571958d)<br>Dec: +00 48 59.82 (.81662d)<br>Equinox: J2000                             |  |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
| Exposures     | #                                                                                                                                            | Label                                                                                                                    | Target           | Config,Mode,Aperture                                                                                          |  | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|               | 1                                                                                                                                            |                                                                                                                          | (10) PS1-C490037 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit J1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|               |                                                                                                                                              |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|               | 2                                                                                                                                            |                                                                                                                          | (10) PS1-C490037 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit J1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|               |                                                                                                                                              |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|               | 3                                                                                                                                            |                                                                                                                          | (10) PS1-C490037 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|               |                                                                                                                                              |                                                                                                                          |                  |                                                                                                               |  |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit J2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

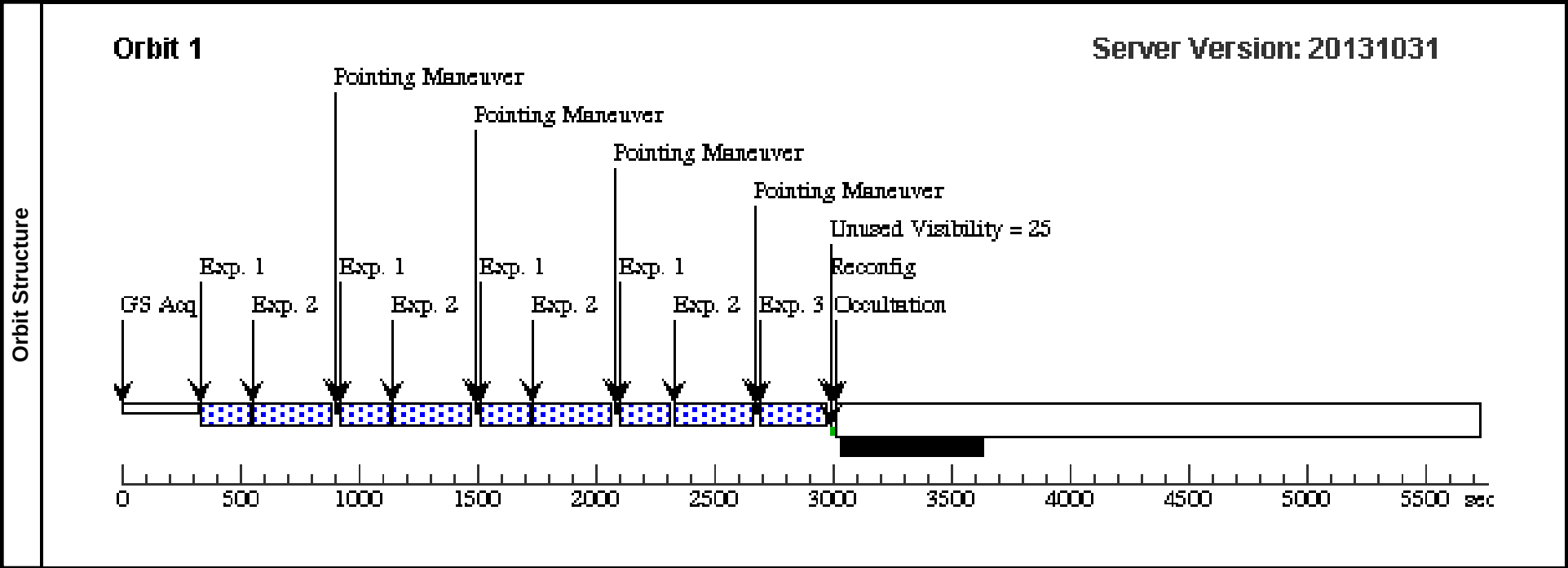
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|-----------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Visit                 | Proposal 13046, Visit J2                                          |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 | Tue Nov 26 02:15:58 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Special Requirements: SCHED 100%; AFTER J1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| On Hold Comments: too |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Patterns              | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                     |                                     | Exposures                       |                              |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                     |                                     | (1-2)                           |                              |
| Purpose=DITHER        |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Number Of Points=4    |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Point Spacing=0.572   |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Line Spacing=0.365    |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Fixed Targets         | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                     | Miscellaneous                       |                                 |                              |
|                       | (10)                                                              | PS1-C490037                         | RA: 09 59 49.7270 (149.9571958d) |                               |                          |                    | V=23              |                                     | Reference Frame: ICRS               |                                 |                              |
|                       |                                                                   | Dec: +00 48 59.82 (.81662d)         |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       |                                                                   | Equinox: J2000                      |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Exposures             | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]     |                                 | Orbit                        |
|                       | 1                                                                 |                                     | (10) PS1-C490037                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 in Visit J2 (1) | 184.223035 Secs (736.892 Secs)      |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          | NSAMP=9            |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
|                       | 2                                                                 |                                     | (10) PS1-C490037                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPARS 25 |                                     | Pattern 1, Exps 1-2 in Visit J2 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
| 3                     |                                                                   | (10) PS1-C490037                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                     | 252.986788 Secs (252.987 Secs)      |                                 |                              |
|                       |                                                                   |                                     |                                  |                               | NSAMP=12                 |                    |                   |                                     | [==>]                               |                                 | [1]                          |





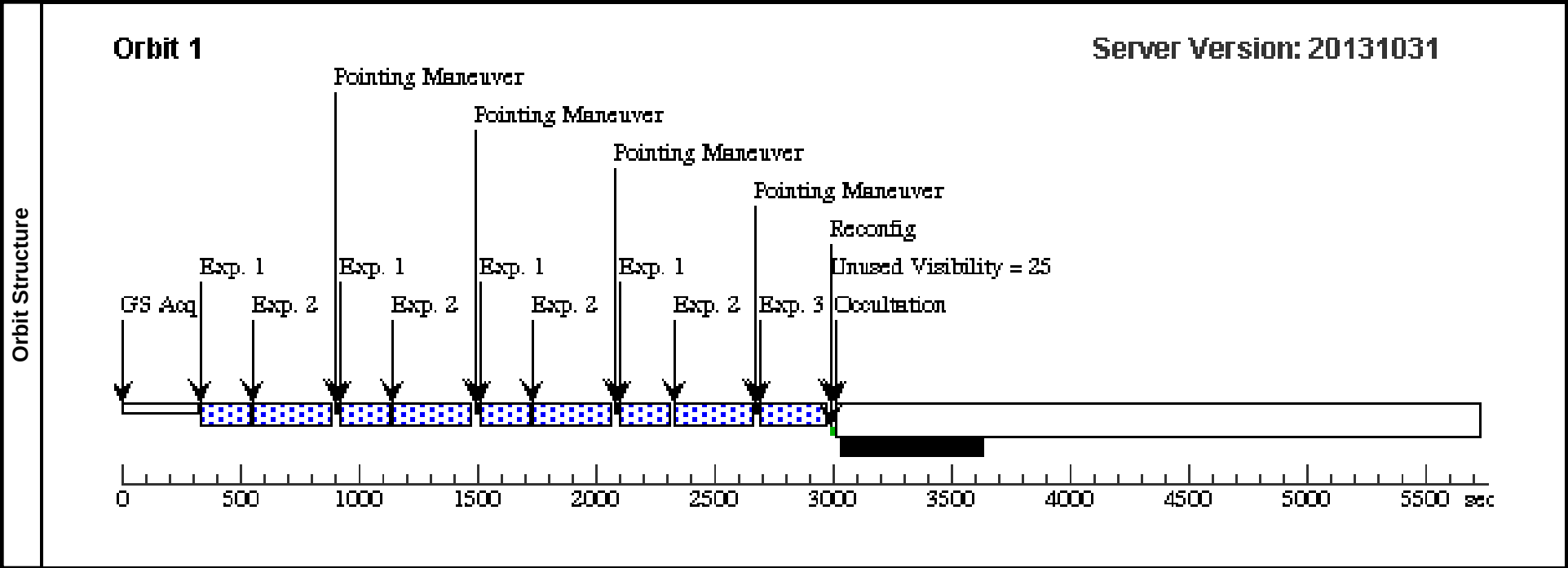
# Proposal 13046 - Visit J3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|-----------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Visit                 | Proposal 13046, Visit J3                                            |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 | Tue Nov 26 02:15:58 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Special Requirements: SCHED 100%; AFTER J1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| On Hold Comments: too |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Patterns              | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                     |                                     | Exposures                       |                              |
|                       | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                     |                                     | (1-2)                           |                              |
| Purpose=DITHER        |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Number Of Points=4    |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Point Spacing=0.572   |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Line Spacing=0.365    |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Fixed Targets         | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                     | Miscellaneous                       |                                 |                              |
|                       | (10)                                                                | PS1-C490037                         | RA: 09 59 49.7270 (149.9571958d) |                               |                          |                    | V=23              |                                     | Reference Frame: ICRS               |                                 |                              |
|                       |                                                                     |                                     | Dec: +00 48 59.82 (.81662d)      |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       |                                                                     |                                     | Equinox: J2000                   |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Exposures             | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]     |                                 | Orbit                        |
|                       | 1                                                                   |                                     | (10) PS1-C490037                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 in Visit J3 (1) | 184.223035 Secs (736.892 Secs)      |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          | NSAMP=9            |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
|                       | 2                                                                   |                                     | (10) PS1-C490037                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 |                                     | Pattern 1, Exps 1-2 in Visit J3 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
| 3                     |                                                                     | (10) PS1-C490037                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                     | 252.986788 Secs (252.987 Secs)      |                                 |                              |
|                       |                                                                     |                                     |                                  |                               | NSAMP=12                 |                    |                   |                                     | [==>]                               |                                 | [1]                          |



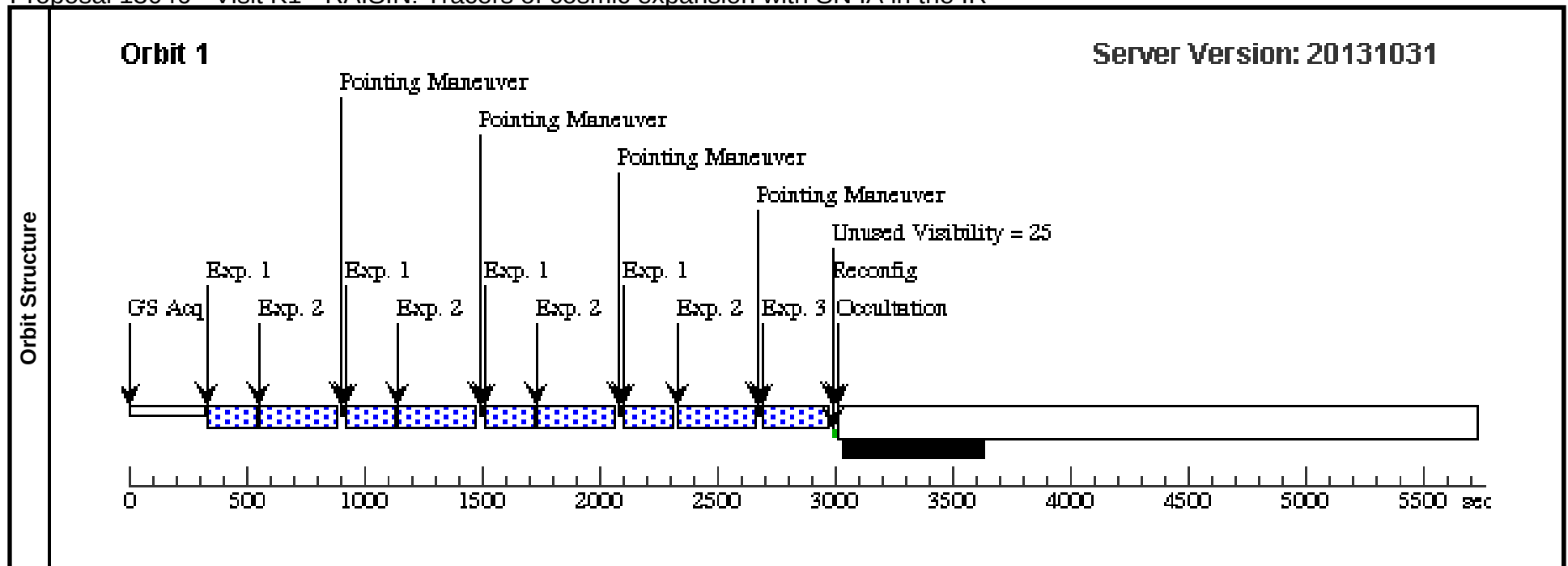
# Proposal 13046 - Visit J4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|-----------------------|-----------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Visit                 | Proposal 13046, Visit J4                      |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 | Tue Nov 26 02:15:58 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics             |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Scientific Instruments: WFC3/IR               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Special Requirements: SCHED 100%; ON HOLD     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       | Comments: single quide star acq is acceptable |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| On Hold Comments: too |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Patterns              | #                                             | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                     |                                     | Exposures                       |                              |
|                       | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                     |                                     | (1-2)                           |                              |
| Purpose=DITHER        |                                               | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Number Of Points=4    |                                               | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Point Spacing=0.572   |                                               | Center Pattern=false                |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Line Spacing=0.365    |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Fixed Targets         | #                                             | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                     | Miscellaneous                       |                                 |                              |
|                       | (10)                                          | PS1-C490037                         | RA: 09 59 49.7270 (149.9571958d) |                               |                          |                    | V=23              |                                     | Reference Frame: ICRS               |                                 |                              |
|                       |                                               |                                     | Dec: +00 48 59.82 (.81662d)      |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                       |                                               |                                     | Equinox: J2000                   |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Exposures             | #                                             | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]     |                                 | Orbit                        |
|                       | 1                                             |                                     | (10) PS1-C490037                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 in Visit J4 (1) | 184.223035 Secs (736.892 Secs)      |                                 |                              |
|                       |                                               |                                     |                                  |                               |                          | NSAMP=9            |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
|                       | 2                                             |                                     | (10) PS1-C490037                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 |                                     | Pattern 1, Exps 1-2 in Visit J4 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
| 3                     |                                               | (10) PS1-C490037                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                     | 252.986788 Secs (252.987 Secs)      |                                 |                              |
|                       |                                               |                                     |                                  |                               | NSAMP=12                 |                    |                   |                                     | [==>]                               |                                 | [1]                          |



# Proposal 13046 - Visit K1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

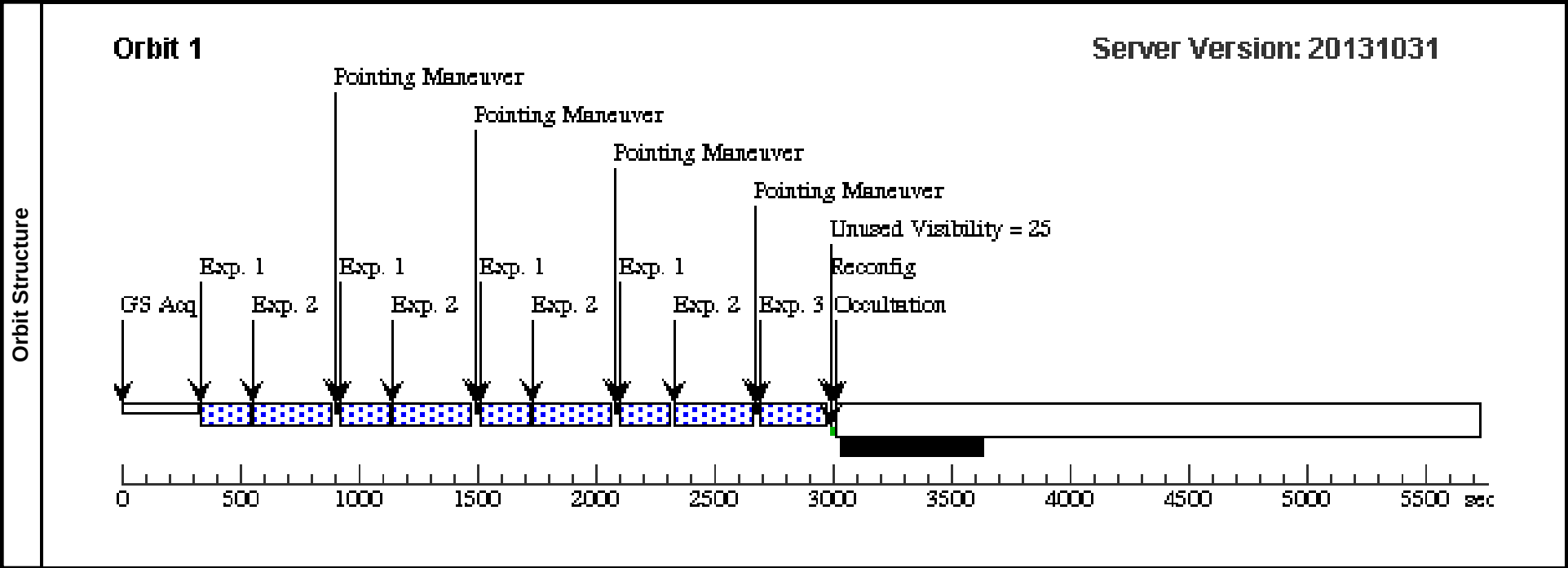
|               |                                                                                                                                          |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-----------|--|
| Visit         | Proposal 13046, Visit K1                                                                                                                 |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:15:59 GMT 2013 |           |  |
|               | Diagnostic Status: No Diagnostics                                                                                                        |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|               | Scientific Instruments: WFC3/IR                                                                                                          |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|               | Special Requirements: SCHED 100%; BETWEEN 18-MAR-2013:00:00:00 AND 03-APR-2013:00:00:00; ON HOLD                                         |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|               | Comments: single quide star acq is acceptable.<br>please try to schedule as early in between window as possible<br>On Hold Comments: too |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
| Patterns      | #                                                                                                                                        | Primary Pattern                                                                                                          |                  |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              |                              | Exposures |  |
|               | (1)                                                                                                                                      | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                  |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              |                              | (1-2)     |  |
| Fixed Targets | #                                                                                                                                        | Name                                                                                                                     |                  | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |           |  |
|               | (11)                                                                                                                                     | PS1-C490521                                                                                                              |                  | RA: 09 55 27.6410 (148.8651708d)<br>Dec: +01 34 31.06 (1.57529d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |           |  |
| Exposures     | #                                                                                                                                        | Label                                                                                                                    | Target           | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit     |  |
|               | 1                                                                                                                                        |                                                                                                                          | (11) PS1-C490521 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit K1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |           |  |
|               |                                                                                                                                          |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]       |  |
|               | 2                                                                                                                                        |                                                                                                                          | (11) PS1-C490521 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit K1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |           |  |
|               |                                                                                                                                          |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]       |  |
|               | 3                                                                                                                                        |                                                                                                                          | (11) PS1-C490521 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |           |  |
|               |                                                                                                                                          |                                                                                                                          |                  |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]       |  |



# Proposal 13046 - Visit K2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

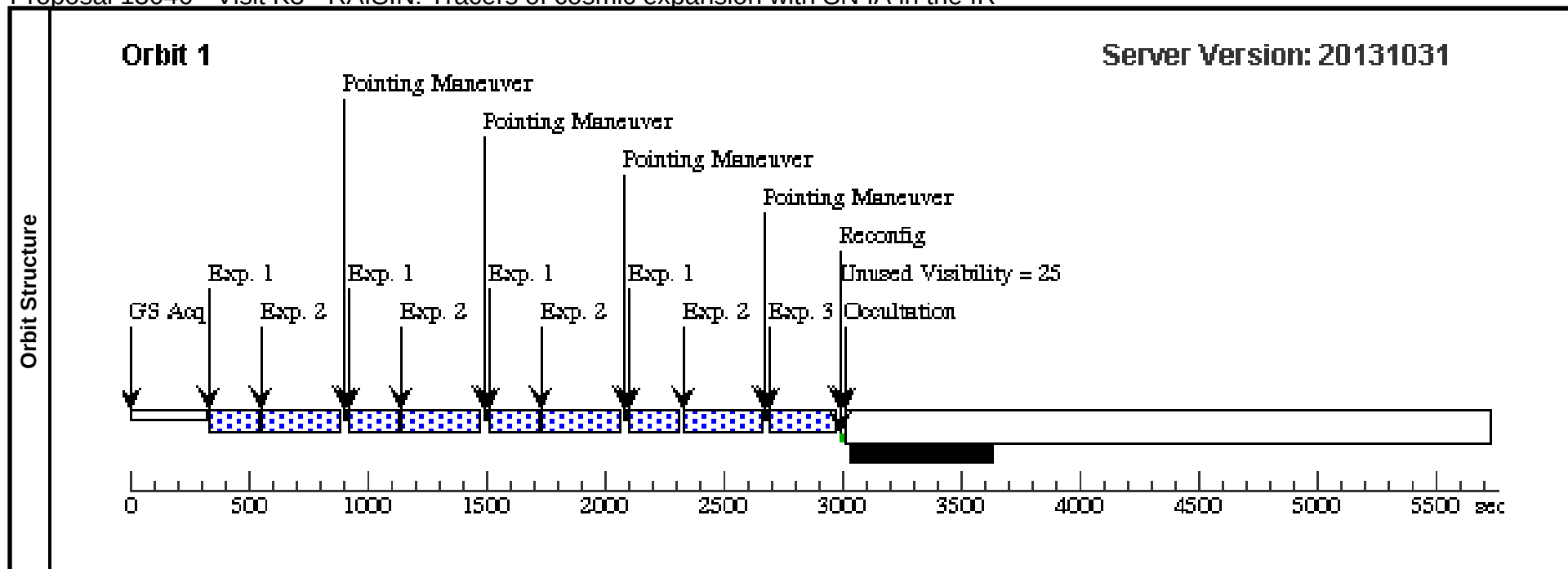
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|-----------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|--------------------------------------|--------------------------------------|---------------------------------|------------------------------|
| Visit                 | Proposal 13046, Visit K2                                          |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 | Tue Nov 26 02:15:59 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       | Special Requirements: SCHED 100%; AFTER K1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| On Hold Comments: too |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Patterns              | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                      |                                      | Exposures                       |                              |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                      |                                      | (1-2)                           |                              |
| Purpose=DITHER        |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Number Of Points=4    |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Point Spacing=0.572   |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Line Spacing=0.365    |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Fixed Targets         | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                      | Miscellaneous                        |                                 |                              |
|                       | (11)                                                              | PS1-C490521                         | RA: 09 55 27.6410 (148.8651708d) |                               |                          |                    | V=23              |                                      | Reference Frame: ICRS                |                                 |                              |
|                       |                                                                   | Dec: +01 34 31.06 (1.57529d)        |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       |                                                                   | Equinox: J2000                      |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Exposures             | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                               | Exp. Time (Total)/[Actual Dur.]      |                                 | Orbit                        |
|                       | 1                                                                 |                                     | (11) PS1-C490521                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 i n Visit K2 (1) | 184.223035 Secs (736.892 Secs)       |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    | NSAMP=9           |                                      | [==>(Pattern 1)]                     |                                 | [1]                          |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 2)]                     |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 3)]                     |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 4)]                     |                                 |                              |
|                       | 2                                                                 |                                     | (11) PS1-C490521                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 |                                      | Pattern 1, Exps 1-2 i n Visit K2 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 1)]                     |                                      | [1]                             |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 2)]                     |                                      |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 3)]                     |                                      |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 4)]                     |                                      |                                 |                              |
| 3                     |                                                                   | (11) PS1-C490521                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                      | 252.986788 Secs (252.987 Secs)       |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          | NSAMP=12           |                   |                                      |                                      | [==>]                           | [1]                          |





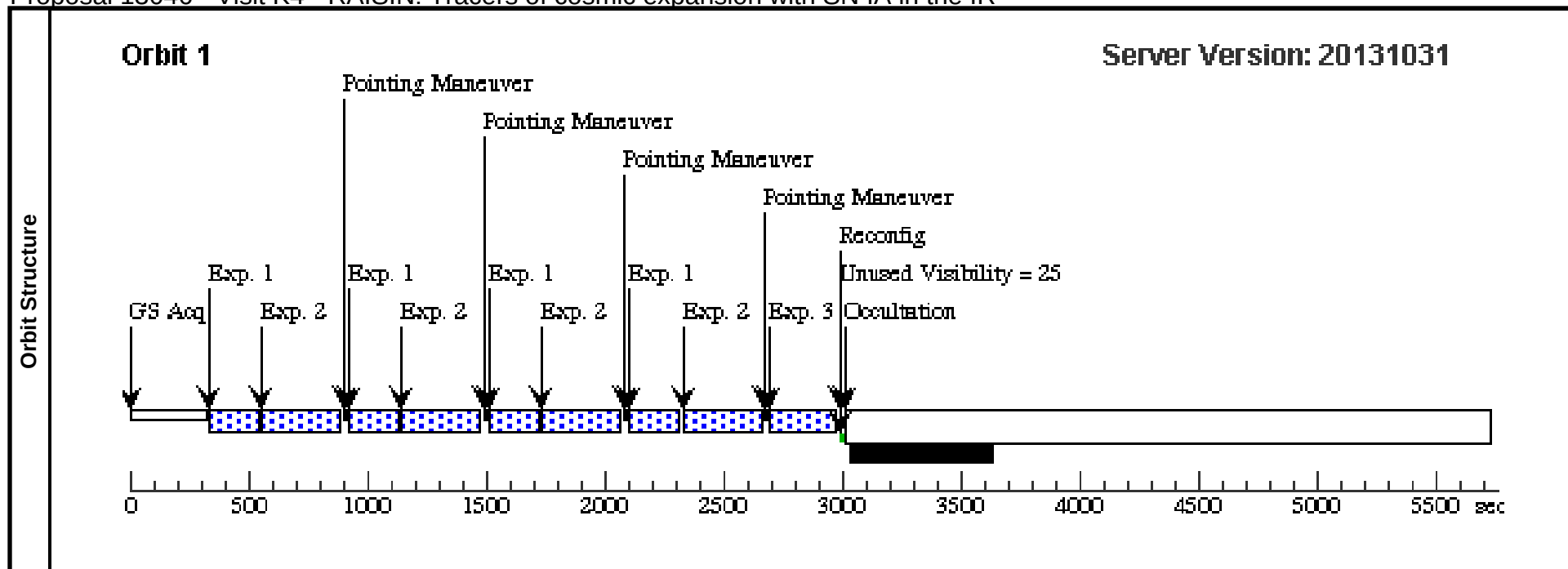
# Proposal 13046 - Visit K3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
|-----------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|------------------|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Visit                 | Proposal 13046, Visit K3                                            |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 | Tue Nov 26 02:16:00 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
|                       | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
|                       | Special Requirements: SCHED 100%; AFTER K1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
|                       | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| On Hold Comments: too |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| Patterns              | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                  |                                     |                                     | Exposures                       |                              |
|                       | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                  |                                     |                                     | (1-2)                           |                              |
| Purpose=DITHER        |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| Number Of Points=4    |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| Point Spacing=0.572   |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| Line Spacing=0.365    |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| Fixed Targets         | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes           |                                     | Miscellaneous                       |                                 |                              |
|                       | (11)                                                                | PS1-C490521                         | RA: 09 55 27.6410 (148.8651708d) |                               |                          |                    | V=23             |                                     | Reference Frame: ICRS               |                                 |                              |
|                       |                                                                     |                                     | Dec: +01 34 31.06 (1.57529d)     |                               |                          |                    |                  |                                     |                                     |                                 |                              |
|                       |                                                                     |                                     | Equinox: J2000                   |                               |                          |                    |                  |                                     |                                     |                                 |                              |
| Exposures             | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.    | Groups                              | Exp. Time (Total)/[Actual Dur.]     |                                 | Orbit                        |
|                       | 1                                                                   |                                     | (11) PS1-C490521                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                  | Pattern 1, Exps 1-2 in Visit K3 (1) | 184.223035 Secs (736.892 Secs)      |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          | NSAMP=9            |                  |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 4)]                    |                                 |                              |
|                       | 2                                                                   |                                     | (11) PS1-C490521                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPARS25 |                                     | Pattern 1, Exps 1-2 in Visit K3 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          |                    |                  |                                     | [==>(Pattern 4)]                    |                                 |                              |
| 3                     |                                                                     | (11) PS1-C490521                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                  |                                     | 252.986788 Secs (252.987 Secs)      |                                 |                              |
|                       |                                                                     |                                     |                                  |                               |                          | NSAMP=12           |                  |                                     | [==>]                               |                                 | [1]                          |



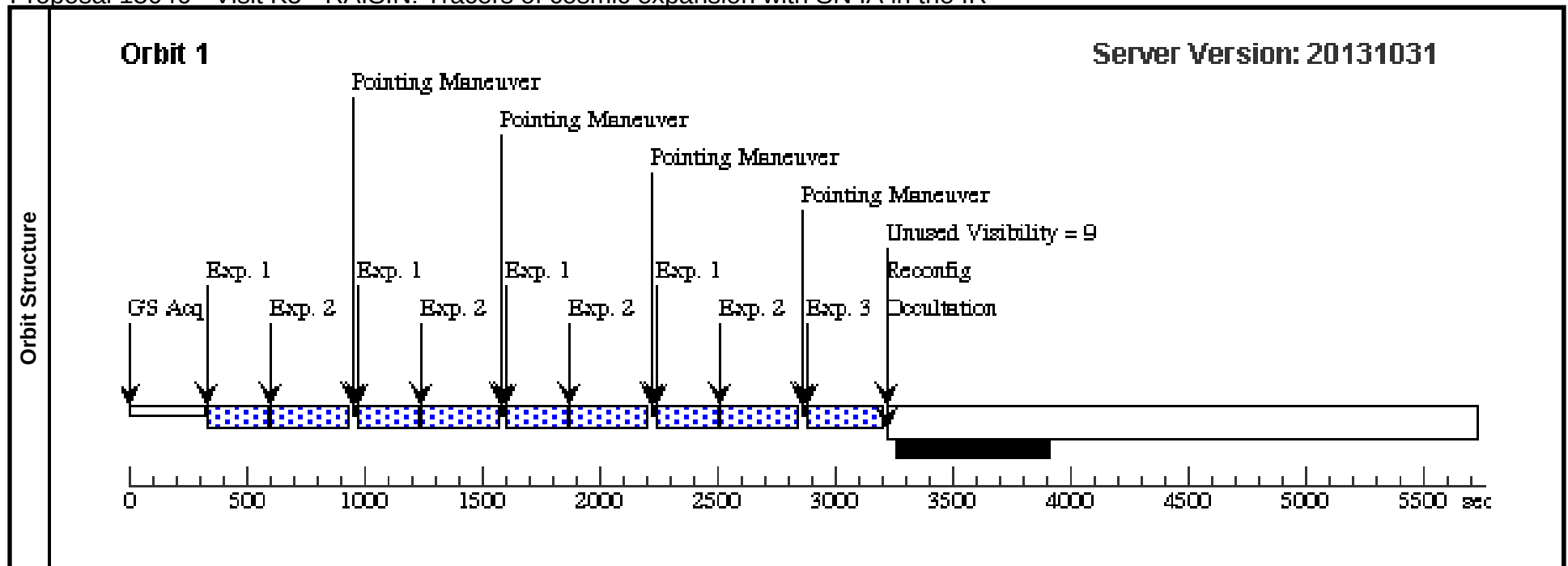
# Proposal 13046 - Visit K4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|-----------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit K4                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           | Tue Nov 26 02:16:00 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics             |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; ON HOLD     |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Patterns              | #                                             | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures |                              |
|                       | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                             | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |           |                              |
|                       | (11)                                          | PS1-C490521                                                                                                              | RA: 09 55 27.6410 (148.8651708d)<br>Dec: +01 34 31.06 (1.57529d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |           |                              |
| Exposures             | #                                             | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                             |                                                                                                                          | (11) PS1-C490521                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit K4 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                             |                                                                                                                          | (11) PS1-C490521                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit K4 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                             |                                                                                                                          | (11) PS1-C490521                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit K5 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

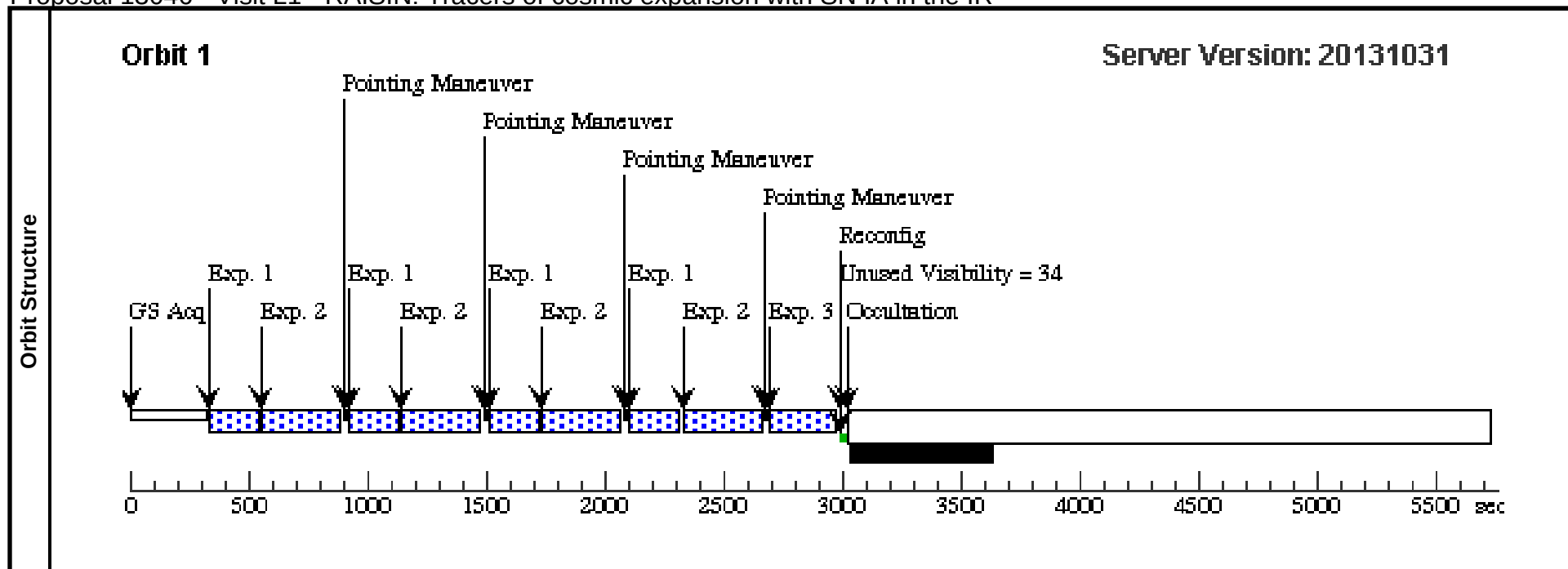
|                       |                                                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------|---------------|--------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------|-----------------------|------------------------------|--|
| Visit                 | Proposal 13046, Visit K5                                                                                                                            |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       | Tue Nov 26 02:16:01 GMT 2013 |  |
|                       | Diagnostic Status: Warning                                                                                                                          |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
|                       | Scientific Instruments: WFC3/IR                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
|                       | Special Requirements: BETWEEN 01-DEC-2013:00:00:00 AND 30-JUN-2014:00:00:00; ON HOLD                                                                |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
|                       | Comments: single quide star acq is acceptable                                                                                                       |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
| On Hold Comments: too |                                                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
| Diagnostics           | (Visit K5) Warning (Form): The proposal is part of a cycle 20 large program (100 orbits or more in one cycle) and so should use Schedulability 100. |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
|                       |                                                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     |                                                                              |                       |                              |  |
| Patterns              | #                                                                                                                                                   | Primary Pattern                                                                                                          |                  |                                                                                    |               |                                | Secondary Pattern                                                                                             |                                     |                                                                              |                       | Exposures                    |  |
|                       | (1)                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                  |                                                                                    |               |                                | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                     |                                                                              |                       | (1-2)                        |  |
| Fixed Targets         | #                                                                                                                                                   | Name                                                                                                                     |                  | Target Coordinates                                                                 |               | Targ. Coord. Corrections       |                                                                                                               | Fluxes                              |                                                                              | Miscellaneous         |                              |  |
|                       | (11)                                                                                                                                                | PS1-C490521                                                                                                              |                  | RA: 09 55 27.6410 (148.8651708d)<br>Dec: +01 34 31.06 (1.57529d)<br>Equinox: J2000 |               |                                |                                                                                                               | V=23                                |                                                                              | Reference Frame: ICRS |                              |  |
| Exposures             | #                                                                                                                                                   | Label                                                                                                                    | Target           | Config,Mode,Aperture                                                               | Spectral Els. | Opt. Params.                   | Special Reqs.                                                                                                 | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                       | Orbit                        |  |
|                       | 1                                                                                                                                                   |                                                                                                                          | (11) PS1-C490521 | WFC3/IR, MULTIACCUM, IRSUB512                                                      | F125W         | SAMP-SEQ=SPARS 25;<br>NSAMP=11 |                                                                                                               | Pattern 1, Exps 1-2 in Visit K5 (1) | 230.065537 Secs (920.262 Secs)                                               |                       |                              |  |
|                       |                                                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                       | 2                                                                                                                                                   |                                                                                                                          | (11) PS1-C490521 | WFC3/IR, MULTIACCUM, IRSUB512                                                      | F160W         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                                                                                                               | Pattern 1, Exps 1-2 in Visit K5 (1) | 321.750541 Secs (1287.002 Secs)                                              |                       |                              |  |
|                       |                                                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                       | 3                                                                                                                                                   |                                                                                                                          | (11) PS1-C490521 | WFC3/IR, MULTIACCUM, IRSUB512                                                      | F160W         | SAMP-SEQ=SPARS 25;<br>NSAMP=14 |                                                                                                               |                                     | 298.82929 Secs (298.829 Secs)                                                |                       |                              |  |
|                       |                                                                                                                                                     |                                                                                                                          |                  |                                                                                    |               |                                |                                                                                                               |                                     | [==>]                                                                        |                       | [1]                          |  |



# Proposal 13046 - Visit L1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

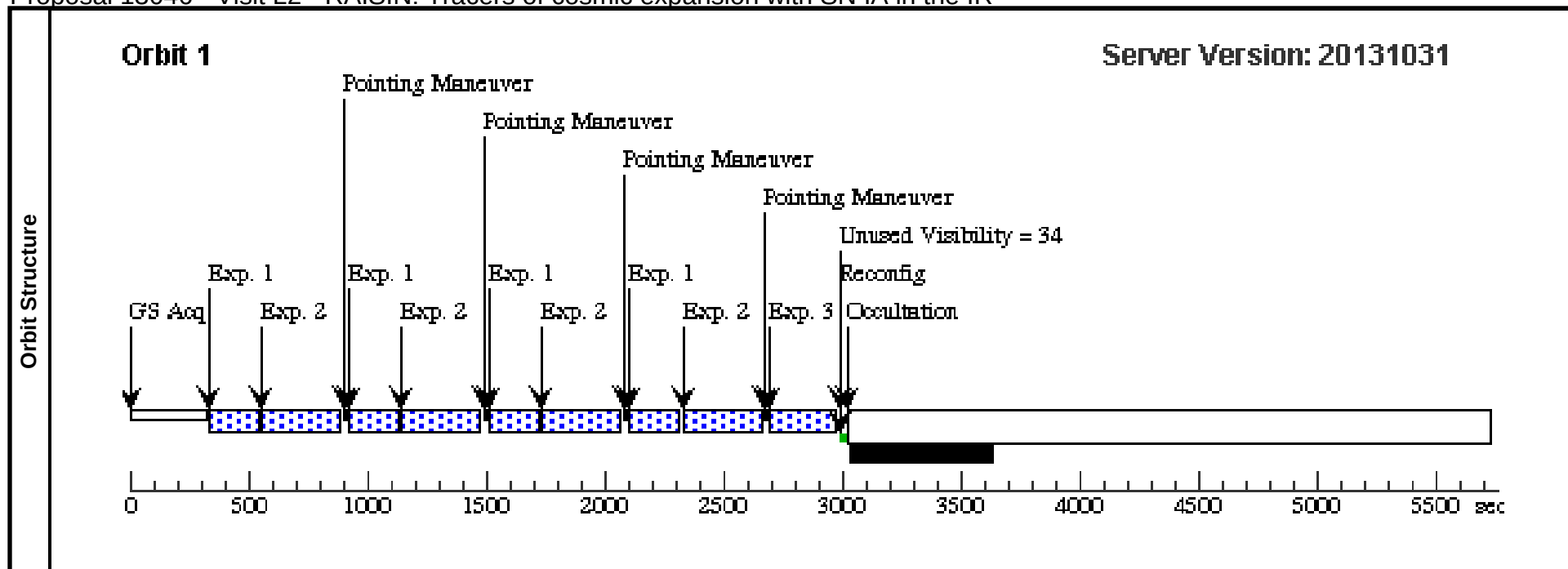
|                       |                                                                                                  |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit L1                                                                         |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           | Tue Nov 26 02:16:01 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; BETWEEN 21-APR-2013:00:00:00 AND 01-MAY-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                                                                                     |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures |                              |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                  |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |           |                              |
|                       | (12)                                                                                             | PS1-D500100                                                                                                              | RA: 08 46 33.2460 (131.6385250d)<br>Dec: +45 21 22.15 (45.35615d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: PS1-13aee (2013-D-500100)                                                              |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                                                |                                                                                                                          | (12) PS1-D500100                                                                    | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit L1 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                                                |                                                                                                                          | (12) PS1-D500100                                                                    | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit L1 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                                                |                                                                                                                          | (12) PS1-D500100                                                                    | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |           | [1]                          |





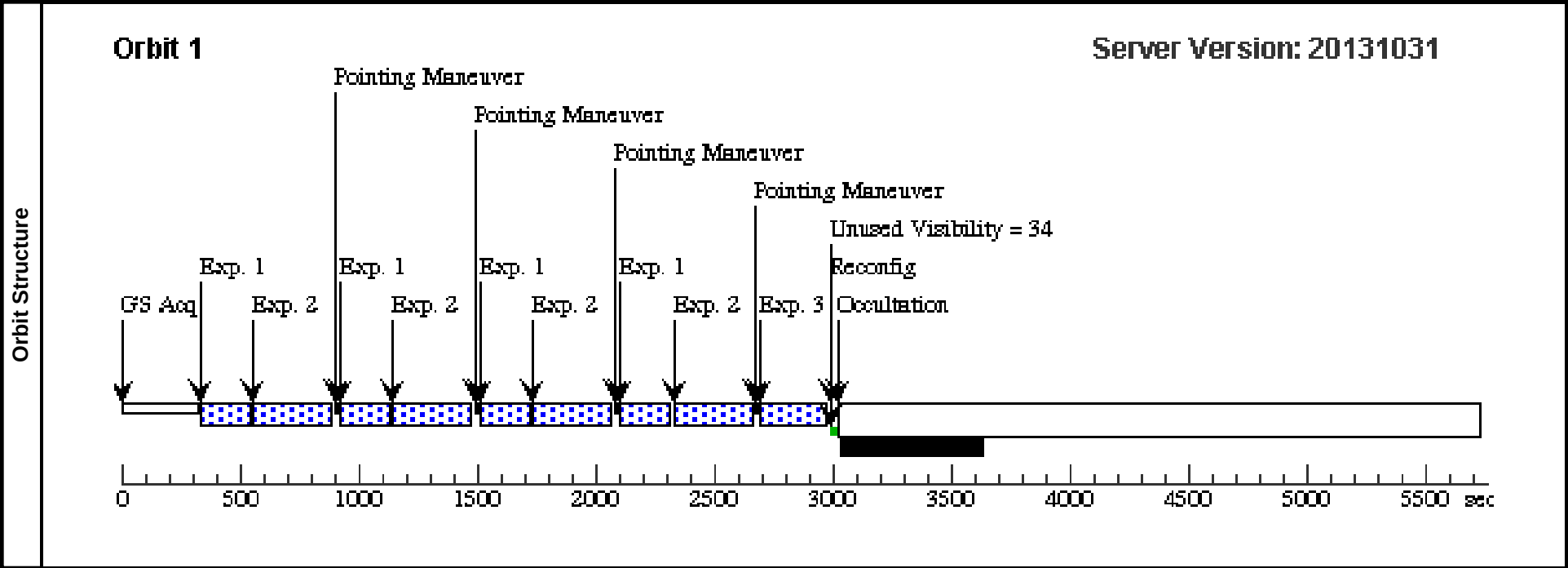
# Proposal 13046 - Visit L2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
|-------------------------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|-------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                               | Proposal 13046, Visit L2                                          |                                     |                                  |                               |                          |                    |               |                                     |                                 |           | Tue Nov 26 02:16:02 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
|                                     | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
|                                     | Special Requirements: SCHED 100%; AFTER L1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
|                                     | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| On Hold Comments: too               |                                                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Patterns                            | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                     |                                 | Exposures |                              |
|                                     | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                     |                                 | (1-2)     |                              |
| Purpose=DITHER                      |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Number Of Points=4                  |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Point Spacing=0.572                 |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Line Spacing=0.365                  |                                                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Fixed Targets                       | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                     | Miscellaneous                   |           |                              |
|                                     | (12)                                                              | PS1-D500100                         | RA: 08 46 33.2460 (131.6385250d) |                               |                          |                    | V=23          |                                     | Reference Frame: ICRS           |           |                              |
|                                     | Dec: +45 21 22.15 (45.35615d)                                     |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Equinox: J2000                      |                                                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Comments: PS1-13aee (2013-D-500100) |                                                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |
| Exposures                           | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                                     | 1                                                                 |                                     | (12) PS1-D500100                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 in Visit L2 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 1)]                |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 2)]                |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 3)]                |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 4)]                |           |                              |
| 2                                   |                                                                   | (12) PS1-D500100                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPARS25   |               | Pattern 1, Exps 1-2 in Visit L2 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                    |                                 |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                    |                                 |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                    |                                 |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                    |                                 |           |                              |
| 3                                   |                                                                   | (12) PS1-D500100                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                     | 252.986788 Secs (252.987 Secs)  |           |                              |
|                                     |                                                                   |                                     |                                  |                               | NSAMP=12                 |                    |               |                                     | [==>]                           |           |                              |
|                                     |                                                                   |                                     |                                  |                               |                          |                    |               |                                     |                                 |           | [1]                          |



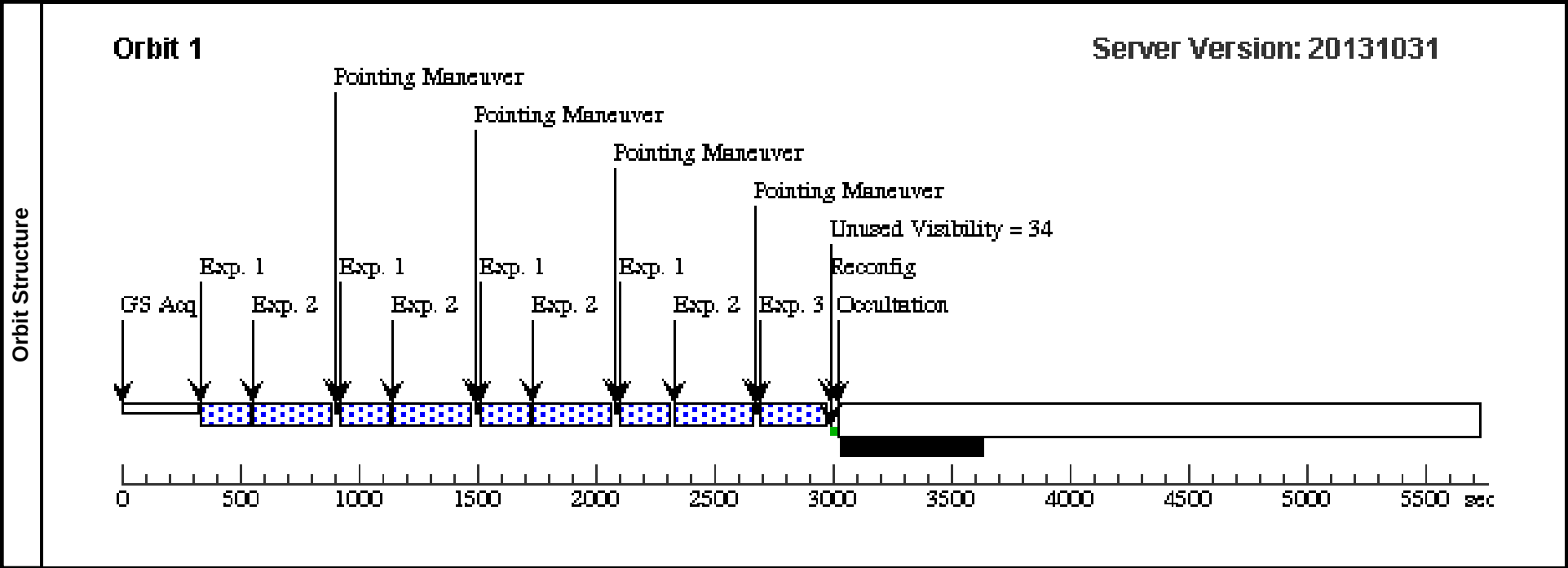
# Proposal 13046 - Visit L3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-----------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit L3                                            |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:16:02 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; AFTER L1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                       |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns              | #                                                                   | Primary Pattern                                                                                                          |                                                                                     |                               |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                   | Name                                                                                                                     | Target Coordinates                                                                  |                               |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                       | (12)                                                                | PS1-D500100                                                                                                              | RA: 08 46 33.2460 (131.6385250d)<br>Dec: +45 21 22.15 (45.35615d)<br>Equinox: J2000 |                               |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: PS1-13aee (2013-D-500100)                                 |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures             | #                                                                   | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture          |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                   |                                                                                                                          | (12) PS1-D500100                                                                    | WFC3/IR, MULTIACCUM, IRSUB512 |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit L3 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                   |                                                                                                                          | (12) PS1-D500100                                                                    | WFC3/IR, MULTIACCUM, IRSUB512 |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |               | Pattern 1, Exps 1-2 in Visit L3 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                   |                                                                                                                          | (12) PS1-D500100                                                                    | WFC3/IR, MULTIACCUM, IRSUB512 |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit L4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

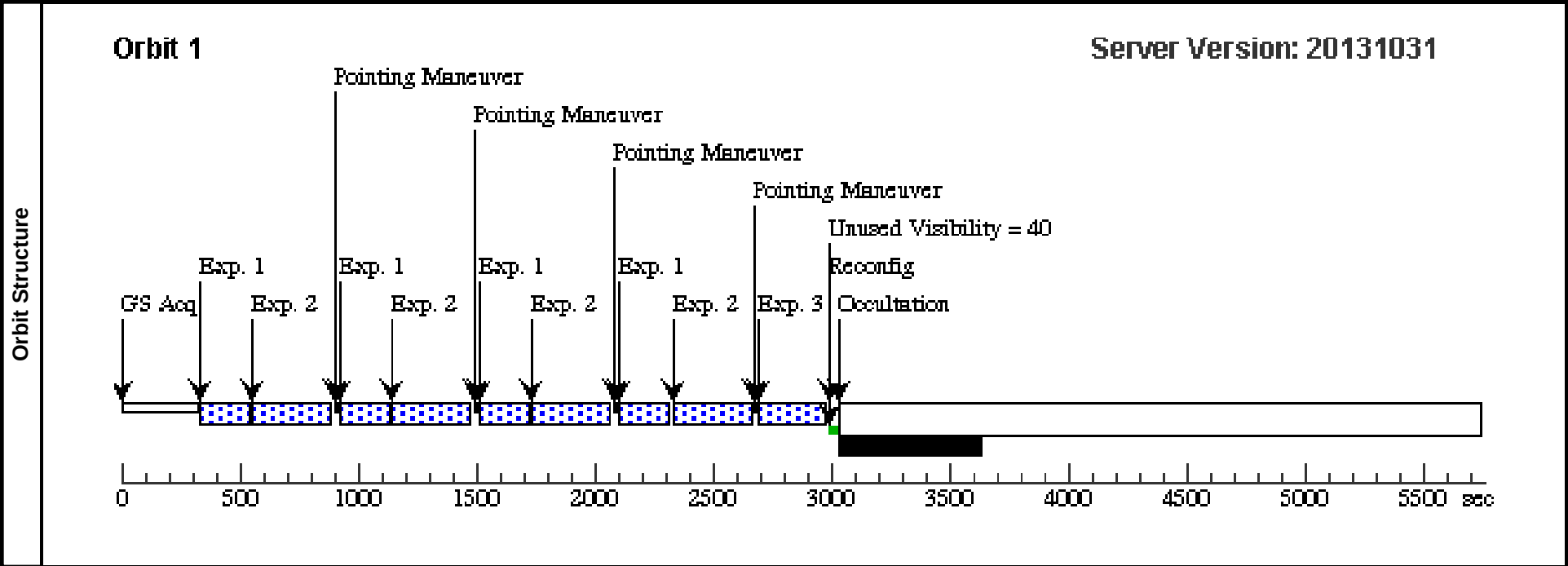
|                                     |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|-------------------------------------|-----------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Visit                               | Proposal 13046, Visit L4                      |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 | Tue Nov 26 02:16:03 GMT 2013 |
|                                     | Diagnostic Status: No Diagnostics             |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                                     | Scientific Instruments: WFC3/IR               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                                     | Special Requirements: SCHED 100%; ON HOLD     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                                     | Comments: single quide star acq is acceptable |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| On Hold Comments: too               |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Patterns                            | #                                             | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                     |                                     | Exposures                       |                              |
|                                     | (1)                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                     |                                     | (1-2)                           |                              |
| Purpose=DITHER                      |                                               | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Number Of Points=4                  |                                               | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Point Spacing=0.572                 |                                               | Center Pattern=false                |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Line Spacing=0.365                  |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Fixed Targets                       | #                                             | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                     | Miscellaneous                       |                                 |                              |
|                                     | (12)                                          | PS1-D500100                         | RA: 08 46 33.2460 (131.6385250d) |                               |                          |                    | V=23              |                                     | Reference Frame: ICRS               |                                 |                              |
|                                     | Dec: +45 21 22.15 (45.35615d)                 |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Equinox: J2000                      |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Comments: PS1-13aee (2013-D-500100) |                                               |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Exposures                           | #                                             | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]     |                                 | Orbit                        |
|                                     | 1                                             |                                     | (12) PS1-D500100                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 in Visit L4 (1) | 184.223035 Secs (736.892 Secs)      |                                 | [1]                          |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 1)]                    |                                 |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
|                                     | 2                                             |                                     | (12) PS1-D500100                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 |                                     | Pattern 1, Exps 1-2 in Visit L4 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 1)]                    |                                     |                                 |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 2)]                    |                                     |                                 |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 3)]                    |                                     |                                 |                              |
|                                     |                                               |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 4)]                    |                                     |                                 |                              |
| 3                                   |                                               | (12) PS1-D500100                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                     | 252.986788 Secs (252.987 Secs)      |                                 | [1]                          |
|                                     |                                               |                                     |                                  |                               | NSAMP=12                 |                    |                   |                                     | [==>]                               |                                 |                              |



# Proposal 13046 - Visit M1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

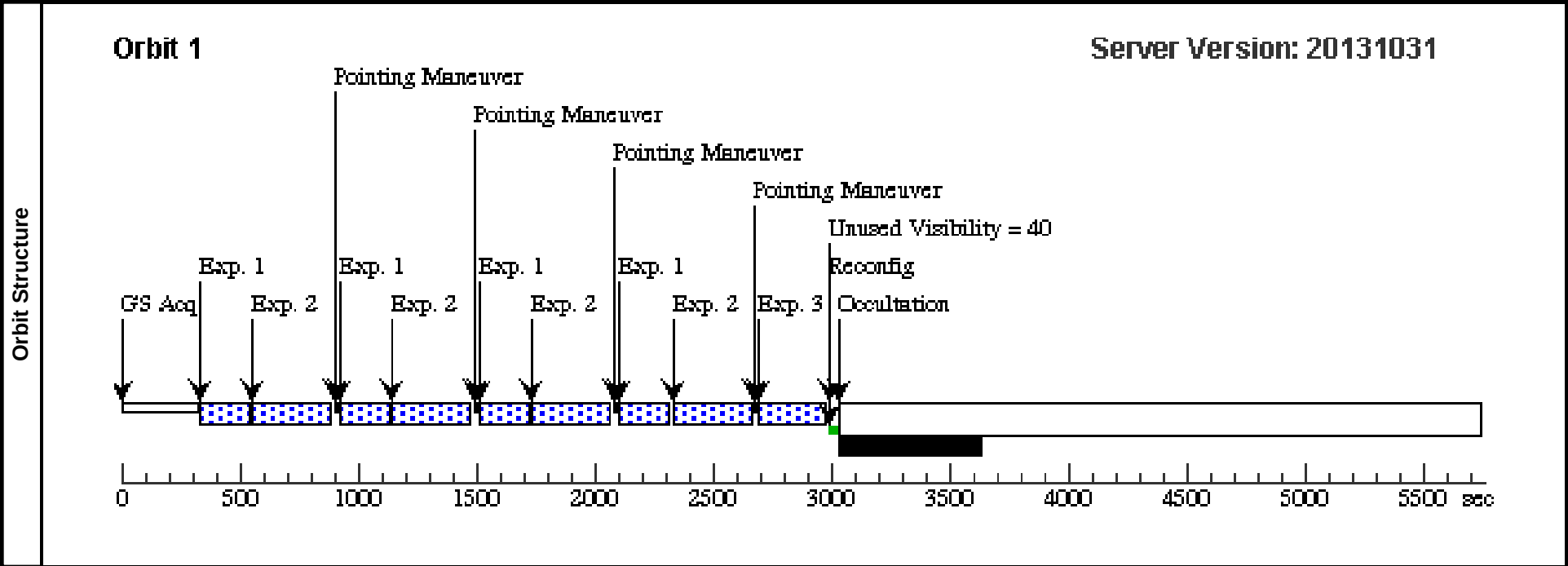
|                       |                                                                                                  |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit M1                                                                         |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 | Tue Nov 26 02:16:03 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
|                       | Special Requirements: SCHED 100%; BETWEEN 05-MAY-2013:00:00:00 AND 08-MAY-2013:00:00:00; ON HOLD |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                  |                                                                                     |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                                                                 | Exposures                    |       |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                  |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                                                                 | (1-2)                        |       |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     |                  | Target Coordinates                                                                  |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                                                   |                              |       |
|                       | (13)                                                                                             | PS1-D500300                                                                                                              |                  | RA: 14 22 11.4520 (215.5477167d)<br>Dec: +52 37 54.65 (52.63185d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                                                           |                              |       |
|                       | Comments: 2013-D-500301                                                                          |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target           | Config,Mode,Aperture                                                                |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                 |                              | Orbit |
|                       | 1                                                                                                |                                                                                                                          | (13) PS1-D500300 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit M1 (1) | 184.223035 Secs (736.892 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]  |                              | [1]   |
|                       | 2                                                                                                |                                                                                                                          | (13) PS1-D500300 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit M1 (1) | 321.750541 Secs (1287.002 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                                                |                                                                                                                          | (13) PS1-D500300 | WFC3/IR, MULTIACCUM, IRSUB512                                                       |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)<br>[==>]                                                                         |                              | [1]   |
|                       |                                                                                                  |                                                                                                                          |                  |                                                                                     |                                                                                                               |                          |                                |               |                                     |                                                                                                                 |                              |       |





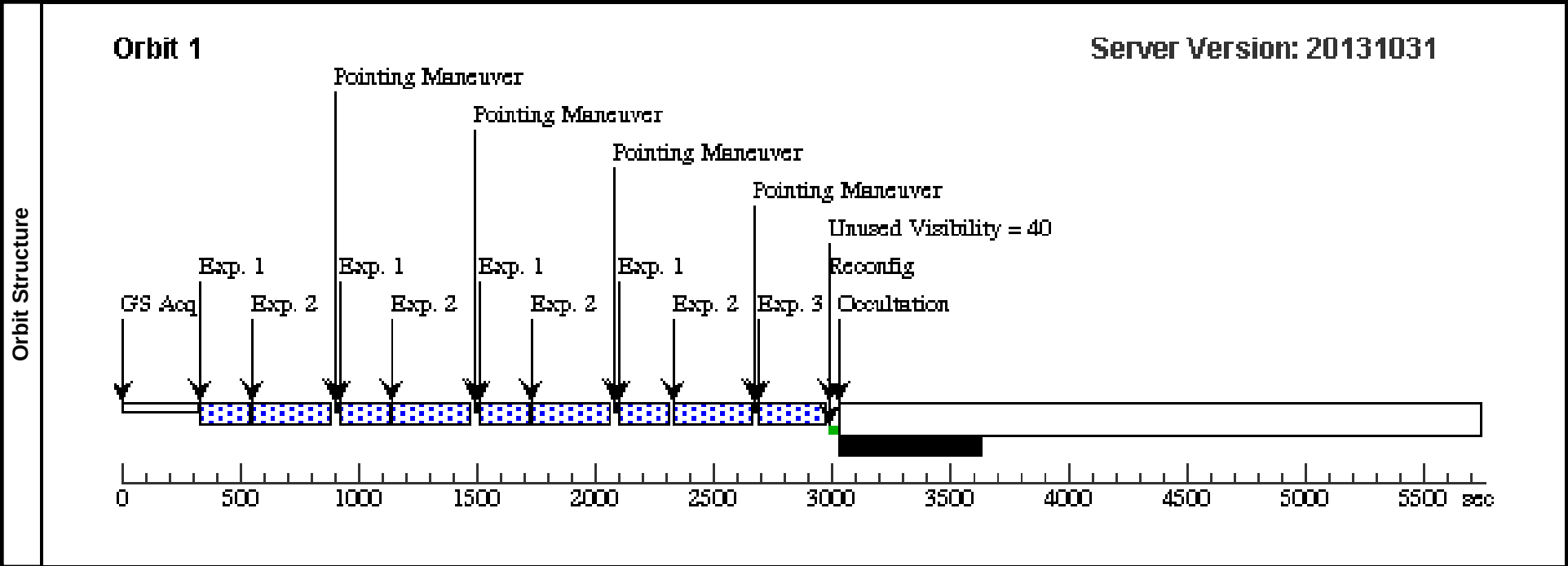
# Proposal 13046 - Visit M2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|-----------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------|------------------------------------------------------------------------------|--|------------------------------|--|
| Visit                 | Proposal 13046, Visit M2                                          |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  | Tue Nov 26 02:16:04 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Special Requirements: SCHED 100%; AFTER M1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Comments: single quide star acq is acceptable                     |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| On Hold Comments: too |                                                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Patterns              | #                                                                 | Primary Pattern                                                                                                          |                                                                                     |                               |                                                                                                               |                                | Secondary Pattern |                                     |                                                                              |  | Exposures                    |  |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                     |                                                                              |  | (1-2)                        |  |
| Fixed Targets         | #                                                                 | Name                                                                                                                     | Target Coordinates                                                                  |                               | Targ. Coord. Corrections                                                                                      |                                | Fluxes            |                                     | Miscellaneous                                                                |  |                              |  |
|                       | (13)                                                              | PS1-D500300                                                                                                              | RA: 14 22 11.4520 (215.5477167d)<br>Dec: +52 37 54.65 (52.63185d)<br>Equinox: J2000 |                               |                                                                                                               |                                | V=23              |                                     | Reference Frame: ICRS                                                        |  |                              |  |
|                       | Comments: 2013-D-500301                                           |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Exposures             | #                                                                 | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |  | Orbit                        |  |
|                       | 1                                                                 |                                                                                                                          | (13) PS1-D500300                                                                    | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 in Visit M2 (1) | 184.223035 Secs (736.892 Secs)                                               |  |                              |  |
|                       |                                                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 2                                                                 |                                                                                                                          | (13) PS1-D500300                                                                    | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 in Visit M2 (1) | 321.750541 Secs (1287.002 Secs)                                              |  |                              |  |
|                       |                                                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 3                                                                 |                                                                                                                          | (13) PS1-D500300                                                                    | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                     | 252.986788 Secs (252.987 Secs)                                               |  |                              |  |
|                       |                                                                   |                                                                                                                          |                                                                                     |                               |                                                                                                               |                                |                   |                                     | [==>]                                                                        |  | [1]                          |  |



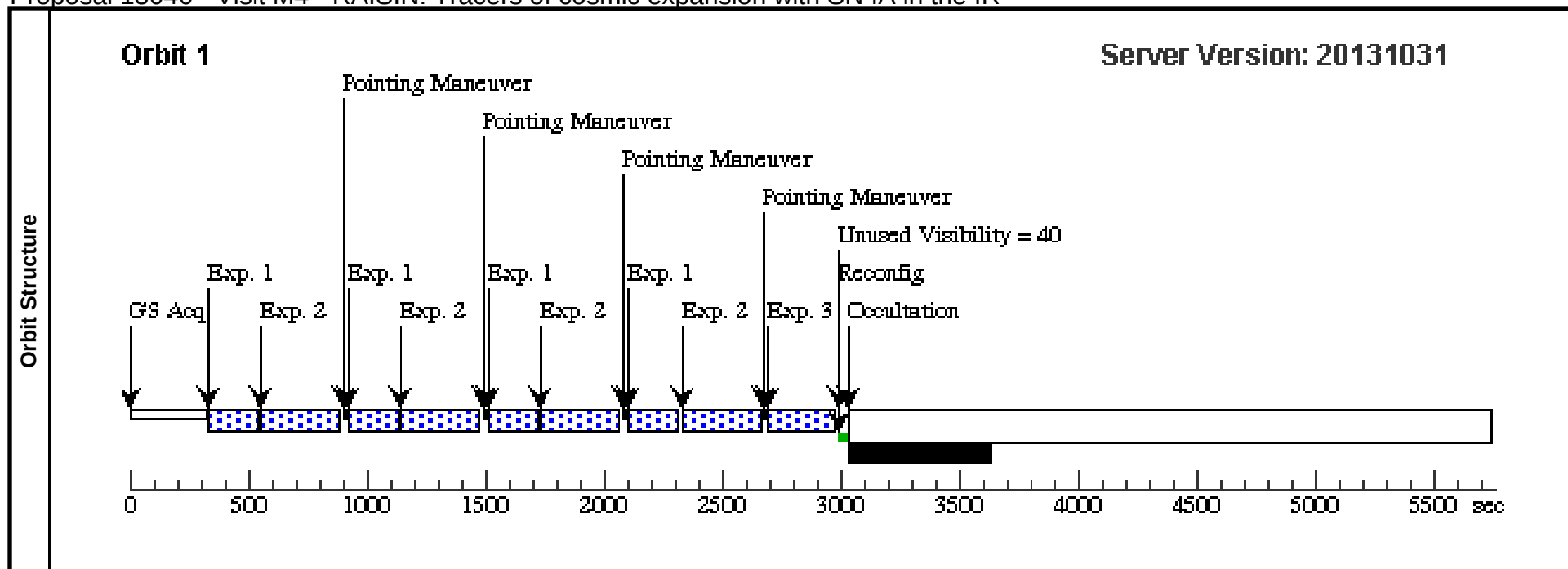
# Proposal 13046 - Visit M3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|-------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|-------------------------------------|-------------------------------------|---------------------------------|------------------------------|
| Visit                   | Proposal 13046, Visit M3                                            |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 | Tue Nov 26 02:16:04 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                         | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                         | Special Requirements: SCHED 100%; AFTER M1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                         | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| On Hold Comments: too   |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Patterns                | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                     |                                     | Exposures                       |                              |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                     |                                     | (1-2)                           |                              |
| Purpose=DITHER          |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Number Of Points=4      |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Point Spacing=0.572     |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Line Spacing=0.365      |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Fixed Targets           | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                     | Miscellaneous                       |                                 |                              |
|                         | (13)                                                                | PS1-D500300                         | RA: 14 22 11.4520 (215.5477167d) |                               |                          |                    | V=23              |                                     | Reference Frame: ICRS               |                                 |                              |
|                         |                                                                     |                                     | Dec: +52 37 54.65 (52.63185d)    |                               |                          |                    |                   |                                     |                                     |                                 |                              |
|                         |                                                                     |                                     | Equinox: J2000                   |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Comments: 2013-D-500301 |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     |                                     |                                 |                              |
| Exposures               | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]     |                                 | Orbit                        |
|                         | 1                                                                   |                                     | (13) PS1-D500300                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 in Visit M3 (1) | 184.223035 Secs (736.892 Secs)      |                                 |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 1)]                    |                                 | [1]                          |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                    |                                 |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                    |                                 |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   |                                     | [==>(Pattern 4)]                    |                                 |                              |
|                         | 2                                                                   |                                     | (13) PS1-D500300                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 |                                     | Pattern 1, Exps 1-2 in Visit M3 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 1)]                    |                                     | [1]                             |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 2)]                    |                                     |                                 |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 3)]                    |                                     |                                 |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   | [==>(Pattern 4)]                    |                                     |                                 |                              |
| 3                       |                                                                     | (13) PS1-D500300                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                     | 252.986788 Secs (252.987 Secs)      |                                 |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   | [==>]                               |                                     | [1]                             |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                   | NSAMP=12                            |                                     |                                 |                              |



# Proposal 13046 - Visit M4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
|-------------------------|-----------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|
| Visit                   | Proposal 13046, Visit M4                                              |                                     |                                  |                               |                          |                    |               |                                     |                                 |           | Tue Nov 26 02:16:05 GMT 2013 |  |
|                         | Diagnostic Status: No Diagnostics                                     |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
|                         | Special Requirements: SCHED 100%; AFTER M1 BY 180 D TO 360 D; ON HOLD |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
|                         | Comments: single quide star acq is acceptable                         |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| On Hold Comments: too   |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Patterns                | #                                                                     | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                     |                                 | Exposures |                              |  |
|                         | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                     |                                 | (1-2)     |                              |  |
| Purpose=DITHER          |                                                                       | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Number Of Points=4      |                                                                       | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Point Spacing=0.572     |                                                                       | Center Pattern=false                |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Line Spacing=0.365      |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Fixed Targets           | #                                                                     | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                     | Miscellaneous                   |           |                              |  |
|                         | (13)                                                                  | PS1-D500300                         | RA: 14 22 11.4520 (215.5477167d) |                               |                          |                    | V=23          |                                     | Reference Frame: ICRS           |           |                              |  |
|                         | Dec: +52 37 54.65 (52.63185d)                                         |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Equinox: J2000          |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Comments: 2013-D-500301 |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |  |
| Exposures               | #                                                                     | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                         | 1                                                                     |                                     | (13) PS1-D500300                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |               | Pattern 1, Exps 1-2 in Visit M4 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 1)]                |           |                              |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 3)]                |           |                              |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                    |                                 |           |                              |  |
| 2                       |                                                                       | (13) PS1-D500300                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 in Visit M4 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 1)]                    |                                 |           |                              |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 2)]                    |                                 |           |                              |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 3)]                    |                                 |           |                              |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                    |                                 |           |                              |  |
| 3                       |                                                                       | (13) PS1-D500300                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |               |                                     | 252.986788 Secs (252.987 Secs)  |           | [1]                          |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>]                               |                                 |           |                              |  |



# Proposal 13046 - Visit N1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:05 GMT 2013

|                         |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
|-------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit N1                                                                         |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           | Tue Nov 26 02:16:05 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
|                         | Special Requirements: SCHED 100%; BETWEEN 19-MAY-2013:00:00:00 AND 29-MAY-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
| On Hold Comments: too   |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
| Patterns                | #                                                                                                | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                        |                                     |                                                                                                                 | Exposures |                              |
|                         | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                        |                                     |                                                                                                                 | (1)       |                              |
| Fixed Targets           | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                 |                                     | Miscellaneous                                                                                                   |           |                              |
|                         | (14)                                                                                             | PS1-E510457                                                                                                              | RA: 12 25 33.3190 (186.3888292d)<br>Dec: +48 08 12.71 (48.13686d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                   |                                     | Reference Frame: ICRS                                                                                           |           |                              |
| Comments: 2013-D-500301 |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
| Exposures               | #                                                                                                | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |
|                         | 1                                                                                                |                                                                                                                          | (14) PS1-E510457                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPARS50                                                                                 | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-1 in Visit N1 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
| Orbit Structure         | Orbit 1                                                                                          |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
|                         | Server Version: 20131031                                                                         |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |
|                         |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                                 |           |                              |



# Proposal 13046 - Visit N2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:05 GMT 2013

|                         |                                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
|-------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit N2                                                             |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           | Tue Nov 26 02:16:05 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                                    |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
|                         | Special Requirements: SCHED 100%; SAME ORIENT AS N1; AFTER N1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                                        |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
| On Hold Comments: too   |                                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
| Patterns                | #                                                                                    | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                            |                                         |                                                                                                                 | Exposures |                              |
|                         | (1)                                                                                  | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                            |                                         |                                                                                                                 | (1)       |                              |
| Fixed Targets           | #                                                                                    | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                     |                                         | Miscellaneous                                                                                                   |           |                              |
|                         | (14)                                                                                 | PS1-E510457                                                                                                              | RA: 12 25 33.3190 (186.3888292d)<br>Dec: +48 08 12.71 (48.13686d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                       |                                         | Reference Frame: ICRS                                                                                           |           |                              |
| Comments: 2013-D-500301 |                                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
| Exposures               | #                                                                                    | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.              | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |
|                         | 1                                                                                    |                                                                                                                          | (14) PS1-E510457                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             | GS ACQ SCENARI<br>O SINGLE | Pattern 1, Exps 1-1 i<br>n Visit N2 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
| Orbit Structure         | Orbit 1                                                                              |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
|                         | Server Version: 20131031                                                             |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |
|                         |                                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |

# Proposal 13046 - Visit N3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:06 GMT 2013

|                         |                                                                                        |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
|-------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit N3                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           | Tue Nov 26 02:16:06 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
|                         | Scientific Instruments: WFC3/IR                                                        |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
|                         | Special Requirements: SCHED 100%; SAME ORIENT AS N1; AFTER N1 BY 18 D TO 21 D; ON HOLD |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
|                         | Comments: single guide star acq is acceptable                                          |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
| On Hold Comments: too   |                                                                                        |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
| Patterns                | #                                                                                      | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                        |                                     |                                                                                                             | Exposures |                              |
|                         | (1)                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                        |                                     |                                                                                                             | (1)       |                              |
| Fixed Targets           | #                                                                                      | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                 |                                     | Miscellaneous                                                                                               |           |                              |
|                         | (14)                                                                                   | PS1-E510457                                                                                                              | RA: 12 25 33.3190 (186.3888292d)<br>Dec: +48 08 12.71 (48.13686d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                   |                                     | Reference Frame: ICRS                                                                                       |           |                              |
| Comments: 2013-D-500301 |                                                                                        |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
| Exposures               | #                                                                                      | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                             | Orbit     |                              |
|                         | 1                                                                                      |                                                                                                                          | (14) PS1-E510457                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPARS50                                                                                 | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-1 in Visit N3 (1) | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]       |                              |
| Orbit Structure         | Orbit 1                                                                                |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
|                         | Server Version: 20131031                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |
|                         |                                                                                        |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |

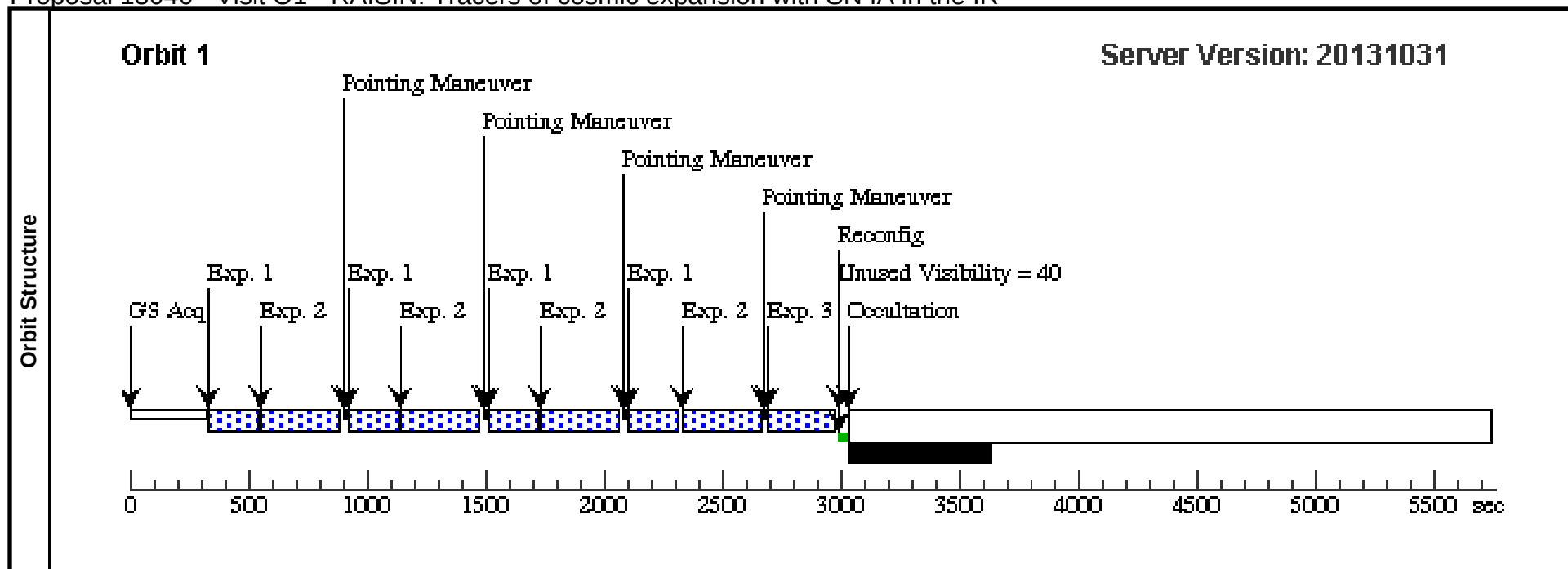
# Proposal 13046 - Visit N4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:06 GMT 2013

|                         |                                                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|-------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                   | Proposal 13046, Visit N4                                              |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           | Tue Nov 26 02:16:06 GMT 2013 |                          |
|                         | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|                         | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|                         | Special Requirements: SCHED 100%; AFTER N1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|                         | Comments: single guide star acq is acceptable                         |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
| On Hold Comments: too   |                                                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
| Patterns                | #                                                                     | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                        |                                     |                                                                                                             | Exposures |                              |                          |
|                         | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                        |                                     |                                                                                                             | (1)       |                              |                          |
| Fixed Targets           | #                                                                     | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                 |                                     | Miscellaneous                                                                                               |           |                              |                          |
|                         | (14)                                                                  | PS1-E510457                                                                                                              | RA: 12 25 33.3190 (186.3888292d)<br>Dec: +48 08 12.71 (48.13686d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                   |                                     | Reference Frame: ICRS                                                                                       |           |                              |                          |
| Comments: 2013-D-500301 |                                                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
| Exposures               | #                                                                     | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                             |           | Orbit                        |                          |
|                         | 1                                                                     |                                                                                                                          | (14) PS1-E510457                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPARS50                                                                                 | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-1 in Visit N4 (1) | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure         | Orbit 1                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              | Server Version: 20131031 |
|                         |                                                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |

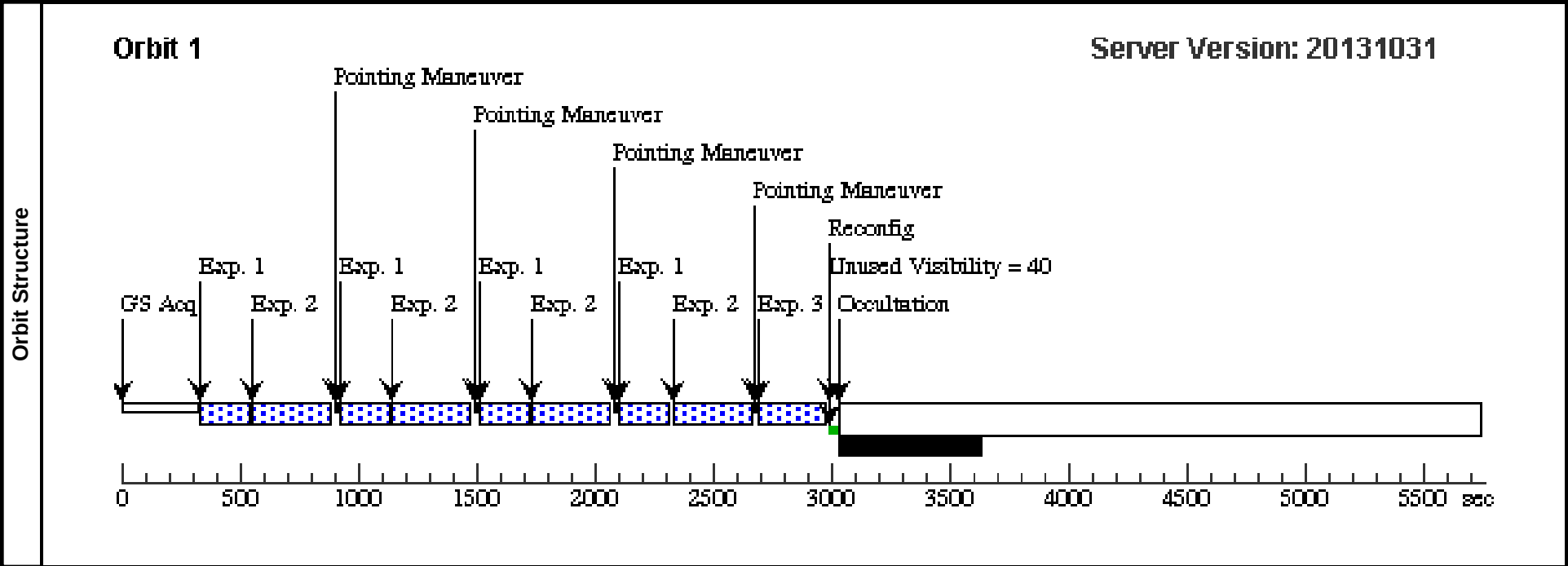
# Proposal 13046 - Visit O1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit O1                                                                         |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           | Tue Nov 26 02:16:06 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; BETWEEN 16-JUN-2013:00:00:00 AND 26-JUN-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures |                              |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |           |                              |
|                       | (15)                                                                                             | PS1-F520062                                                                                                              | RA: 16 17 48.3290 (244.4513708d)<br>Dec: +54 38 0.18 (54.63338d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: PS1-13brl (2013-F-520062)                                                              |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                                                |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit O1 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                                                |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit O1 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                                                |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit O2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

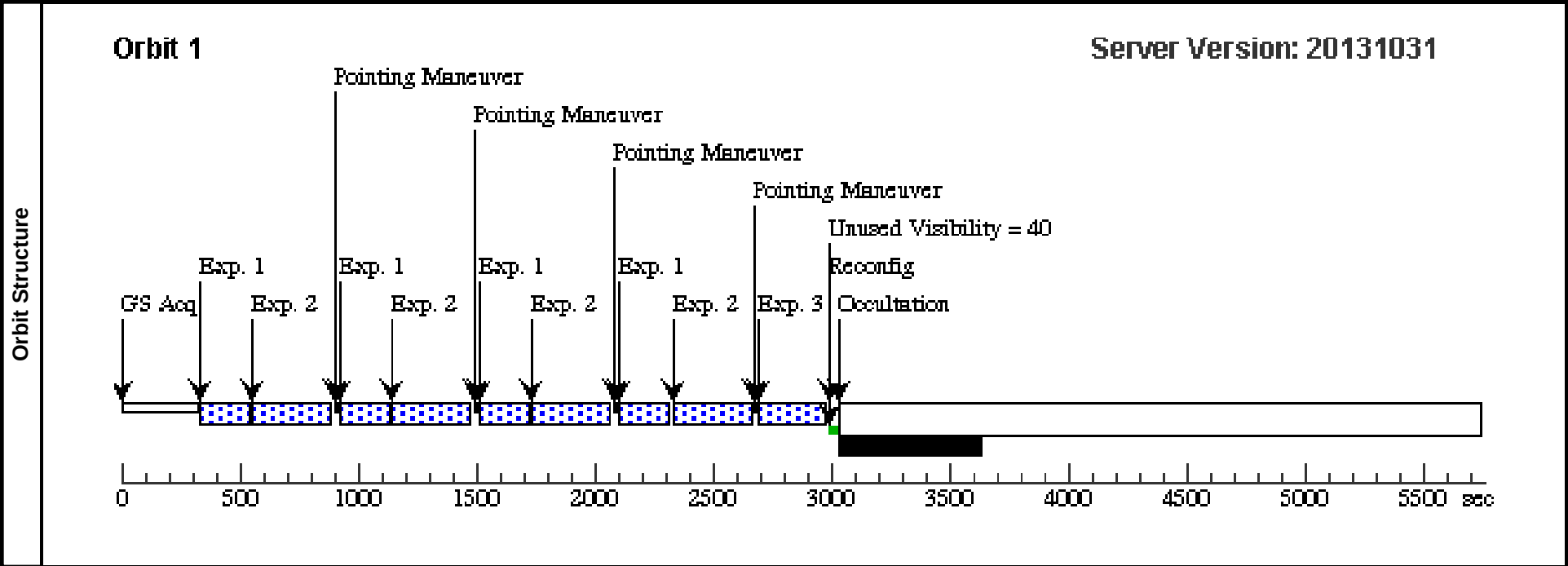
|                       |                                                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|-----------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit O2                                                             |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           | Tue Nov 26 02:16:07 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                    |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; SAME ORIENT AS O1; AFTER O1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Patterns              | #                                                                                    | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures |                              |
|                       | (1)                                                                                  | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                                    | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |           |                              |
|                       | (15)                                                                                 | PS1-F520062                                                                                                              | RA: 16 17 48.3290 (244.4513708d)<br>Dec: +54 38 0.18 (54.63338d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: PS1-13brl (2013-F-520062)                                                  |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Exposures             | #                                                                                    | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                                    |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit O2 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                                    |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |               | Pattern 1, Exps 1-2 in Visit O2 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                                    |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit O3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

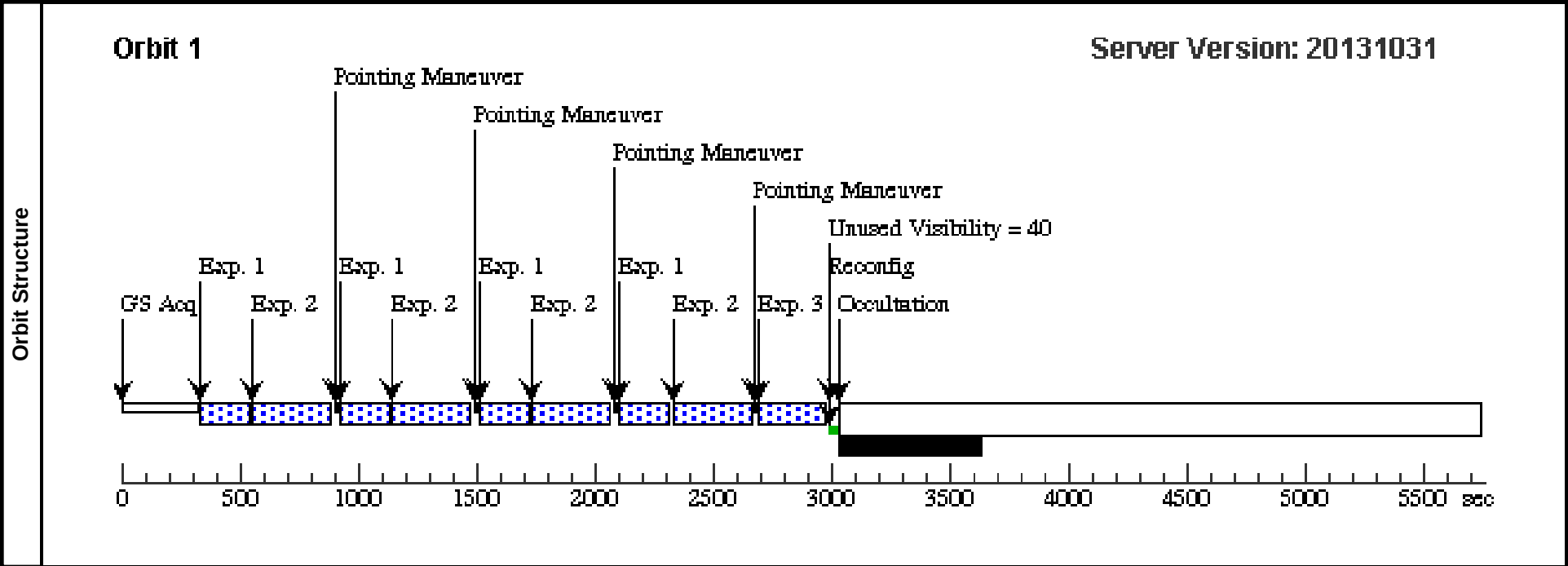
|                       |                                                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|-----------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit O3                                                               |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           | Tue Nov 26 02:16:07 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                      |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; SAME ORIENT AS O1; AFTER O1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Patterns              | #                                                                                      | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures |                              |
|                       | (1)                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                                      | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |           |                              |
|                       | (15)                                                                                   | PS1-F520062                                                                                                              | RA: 16 17 48.3290 (244.4513708d)<br>Dec: +54 38 0.18 (54.63338d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: PS1-13brl (2013-F-520062)                                                    |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       |                                                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Exposures             | #                                                                                      | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                                      |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit O3 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                                      |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |               | Pattern 1, Exps 1-2 in Visit O3 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                                      |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                                        |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |           | [1]                          |





# Proposal 13046 - Visit O4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|-----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------|------------------------------------------------------------------------------|--|------------------------------|--|
| Visit                 | Proposal 13046, Visit O4                                              |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  | Tue Nov 26 02:16:08 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Special Requirements: SCHED 100%; AFTER O1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Comments: single quide star acq is acceptable                         |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| On Hold Comments: too |                                                                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Patterns              | #                                                                     | Primary Pattern                                                                                                          |                                                                                    |                               |                                                                                                               |                                | Secondary Pattern |                                     |                                                                              |  | Exposures                    |  |
|                       | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                     |                                                                              |  | (1-2)                        |  |
| Fixed Targets         | #                                                                     | Name                                                                                                                     | Target Coordinates                                                                 |                               | Targ. Coord. Corrections                                                                                      |                                | Fluxes            |                                     | Miscellaneous                                                                |  |                              |  |
|                       | (15)                                                                  | PS1-F520062                                                                                                              | RA: 16 17 48.3290 (244.4513708d)<br>Dec: +54 38 0.18 (54.63338d)<br>Equinox: J2000 |                               |                                                                                                               |                                | V=23              |                                     | Reference Frame: ICRS                                                        |  |                              |  |
|                       | Comments: PS1-13bri (2013-F-520062)                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Exposures             | #                                                                     | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |  | Orbit                        |  |
|                       | 1                                                                     |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 in Visit O4 (1) | 184.223035 Secs (736.892 Secs)                                               |  |                              |  |
|                       |                                                                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 2                                                                     |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPARS25  |                   | Pattern 1, Exps 1-2 in Visit O4 (1) | 321.750541 Secs (1287.002 Secs)                                              |  |                              |  |
|                       |                                                                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 3                                                                     |                                                                                                                          | (15) PS1-F520062                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                     | 252.986788 Secs (252.987 Secs)                                               |  |                              |  |
|                       |                                                                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>]                                                                        |  | [1]                          |  |



# Proposal 13046 - Visit P1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:08 GMT 2013

|                       |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit P1                                                                         |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           | Tue Nov 26 02:16:08 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
|                       | Special Requirements: SCHED 100%; BETWEEN 16-JUN-2013:00:00:00 AND 26-JUN-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                             |                                         |                                                                                                                 | Exposures |                              |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                             |                                         |                                                                                                                 | (1)       |                              |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                      |                                         | Miscellaneous                                                                                                   |           |                              |
|                       | (16)                                                                                             | PS1-F520107                                                                                                              | RA: 12 16 38.6320 (184.1609667d)<br>Dec: +47 48 57.77 (47.81605d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                        |                                         | Reference Frame: ICRS                                                                                           |           |                              |
|                       | Comments: PS1-13bsm (2013-F-520107)                                                              |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.               | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |
|                       | 1                                                                                                |                                                                                                                          | (16) PS1-F520107                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n Visit P1 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
| Orbit Structure       | Orbit 1                                                                                          |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
|                       | Server Version: 20131031                                                                         |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                             |                                         |                                                                                                                 |           |                              |

# Proposal 13046 - Visit P2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:08 GMT 2013

|                       |                                                                                             |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|-----------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|--|--|---------------|--------------------------|-------------------------------|--|------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------|--|-------------------------------------------------------------------------------------------------------------|-----------------------|--|--|-------|--|--------------------------|-----------|--|--|--|--|--|--|--|--|--|-----|--|--|--|--|--|--|--|--|
| Visit                 | Proposal 13046, Visit P2                                                                    |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  | Tue Nov 26 02:16:08 GMT 2013 |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | Diagnostic Status: No Diagnostics                                                           |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | Scientific Instruments: WFC3/IR                                                             |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | Special Requirements: SCHED 100%; ORIENT -5D TO 5D FROM P1; AFTER P1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | Comments: single guide star acq is acceptable                                               |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
| On Hold Comments: too |                                                                                             |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
| Patterns              | #                                                                                           | Primary Pattern                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              | Secondary Pattern                                                                                             |                                     |  |                                                                                                             |                       |  |  |       |  |                          | Exposures |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | (1)                                                                                         | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                  |                                                                                     |  |  |               |                          |                               |  |                              | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  | (1) |  |  |  |  |  |  |  |  |
| Fixed Targets         | #                                                                                           | Name                                                                                                                     |                  | Target Coordinates                                                                  |  |  |               | Targ. Coord. Corrections |                               |  |                              | Fluxes                                                                                                        |                                     |  |                                                                                                             | Miscellaneous         |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | (16)                                                                                        | PS1-F520107                                                                                                              |                  | RA: 12 16 38.6320 (184.1609667d)<br>Dec: +47 48 57.77 (47.81605d)<br>Equinox: J2000 |  |  |               |                          |                               |  |                              | V=23                                                                                                          |                                     |  |                                                                                                             | Reference Frame: ICRS |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | Comments: PS1-13bsm (2013-F-520107)                                                         |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
| Exposures             | #                                                                                           | Label                                                                                                                    | Target           | Config,Mode,Aperture                                                                |  |  | Spectral Els. |                          | Opt. Params.                  |  | Special Reqs.                |                                                                                                               | Groups                              |  | Exp. Time (Total)/[Actual Dur.]                                                                             |                       |  |  | Orbit |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       | 1                                                                                           |                                                                                                                          | (16) PS1-F520107 | WFC3/IR, MULTIACCUM, IR                                                             |  |  | F160W         |                          | NSAMP=13;<br>SAMP-SEQ=SPARS50 |  | GS ACQ SCENARIO BASE1B3      |                                                                                                               | Pattern 1, Exps 1-1 in Visit P2 (1) |  | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] |                       |  |  | [1]   |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
| Orbit Structure       | Orbit 1                                                                                     |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  | Server Version: 20131031 |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |
|                       |                                                                                             |                                                                                                                          |                  |                                                                                     |  |  |               |                          |                               |  |                              |                                                                                                               |                                     |  |                                                                                                             |                       |  |  |       |  |                          |           |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |

# Proposal 13046 - Visit P3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:09 GMT 2013

|                       |                                                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
|-----------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit P3                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           | Tue Nov 26 02:16:09 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                             |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
|                       | Special Requirements: SCHED 100%; ORIENT -5D TO 5D FROM P1; AFTER P1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
|                       | Comments: single guide star acq is acceptable                                                 |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
| On Hold Comments: too |                                                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
| Patterns              | #                                                                                             | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                         |                                     |                                                                                                                 | Exposures |                              |
|                       | (1)                                                                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                         |                                     |                                                                                                                 | (1)       |                              |
| Fixed Targets         | #                                                                                             | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                  |                                     | Miscellaneous                                                                                                   |           |                              |
|                       | (16)                                                                                          | PS1-F520107                                                                                                              | RA: 12 16 38.6320 (184.1609667d)<br>Dec: +47 48 57.77 (47.81605d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                    |                                     | Reference Frame: ICRS                                                                                           |           |                              |
|                       | Comments: PS1-13bsm (2013-F-520107)                                                           |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
| Exposures             | #                                                                                             | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.           | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |
|                       | 1                                                                                             |                                                                                                                          | (16) PS1-F520107                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPARS50                                                                                 | GS ACQ SCENARIO BASE1B3 | Pattern 1, Exps 1-1 in Visit P3 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
| Orbit Structure       | Orbit 1                                                                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
|                       | Server Version: 20131031                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |
|                       |                                                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |

# Proposal 13046 - Visit P4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

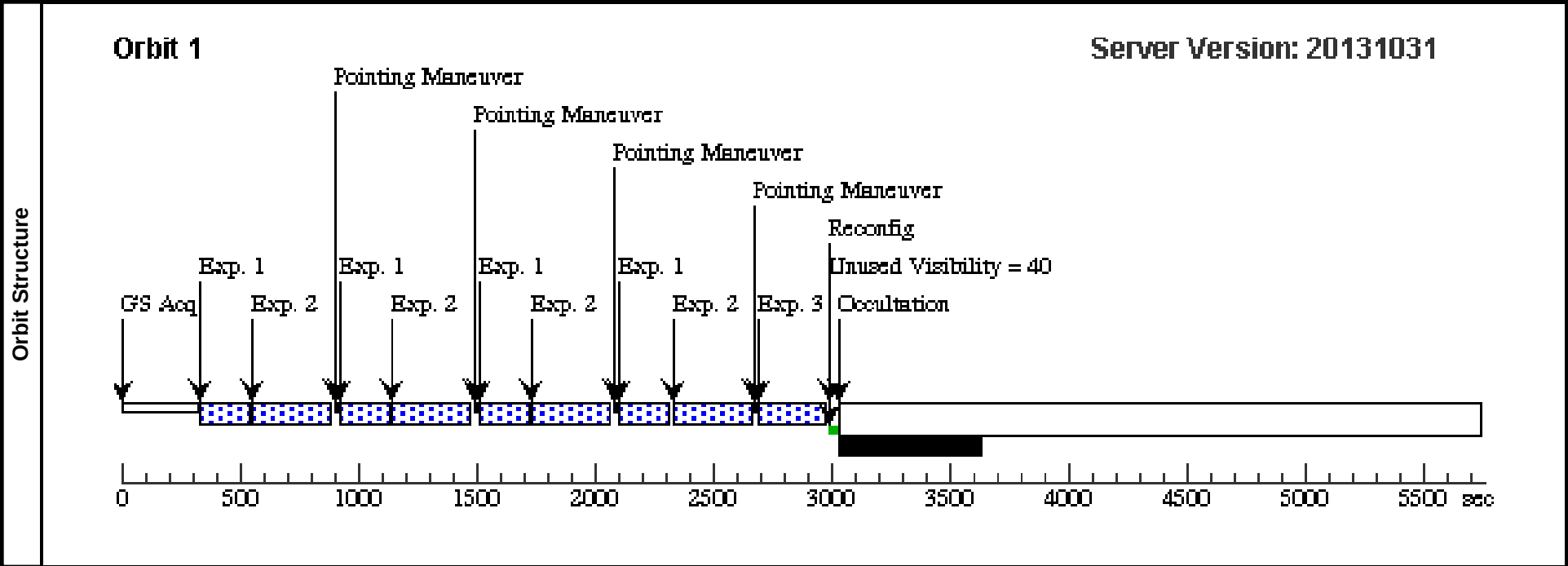
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|                       |                                                                                                                                                                                                                                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                 | Proposal 13046, Visit P4                                                                                                                                                                                                                                                      |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           | Tue Nov 26 02:16:09 GMT 2013 |                          |
|                       | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                             |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
|                       | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
|                       | Special Requirements: SCHED 100%; AFTER P1 BY 180 D TO 300 D; ON HOLD                                                                                                                                                                                                         |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
|                       | Comments: single guide star acq is acceptable                                                                                                                                                                                                                                 |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
| On Hold Comments: too |                                                                                                                                                                                                                                                                               |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
| Patterns              | #                                                                                                                                                                                                                                                                             | Primary Pattern                                                                                                          |                                                                                     |                         |                          | Secondary Pattern                                                                                             |                         |                                     |                                                                                                                 | Exposures |                              |                          |
|                       | (1)                                                                                                                                                                                                                                                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                         |                                     |                                                                                                                 | (1)       |                              |                          |
| Fixed Targets         | #                                                                                                                                                                                                                                                                             | Name                                                                                                                     | Target Coordinates                                                                  |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                  |                                     | Miscellaneous                                                                                                   |           |                              |                          |
|                       | (16)                                                                                                                                                                                                                                                                          | PS1-F520107                                                                                                              | RA: 12 16 38.6320 (184.1609667d)<br>Dec: +47 48 57.77 (47.81605d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                    |                                     | Reference Frame: ICRS                                                                                           |           |                              |                          |
|                       | Comments: PS1-13bsm (2013-F-520107)                                                                                                                                                                                                                                           |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |
| Exposures             | #                                                                                                                                                                                                                                                                             | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.           | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |                          |
|                       | 1                                                                                                                                                                                                                                                                             |                                                                                                                          | (16) PS1-F520107                                                                    | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             | GS ACQ SCENARIO BASE1B3 | Pattern 1, Exps 1-1 in Visit P4 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure       | Orbit 1                                                                                                                                                                                                                                                                       |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              | Server Version: 20131031 |
|                       | <p>GS Acq Exp. 1</p> <p>Pointing Maneuver</p> <p>Exp. 1</p> <p>Pointing Maneuver</p> <p>Exp. 1</p> <p>Pointing Maneuver</p> <p>Exp. 1</p> <p>Unused Visibility = 51</p> <p>Reconfig</p> <p>Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p> |                                                                                                                          |                                                                                     |                         |                          |                                                                                                               |                         |                                     |                                                                                                                 |           |                              |                          |

# Proposal 13046 - Visit Q1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

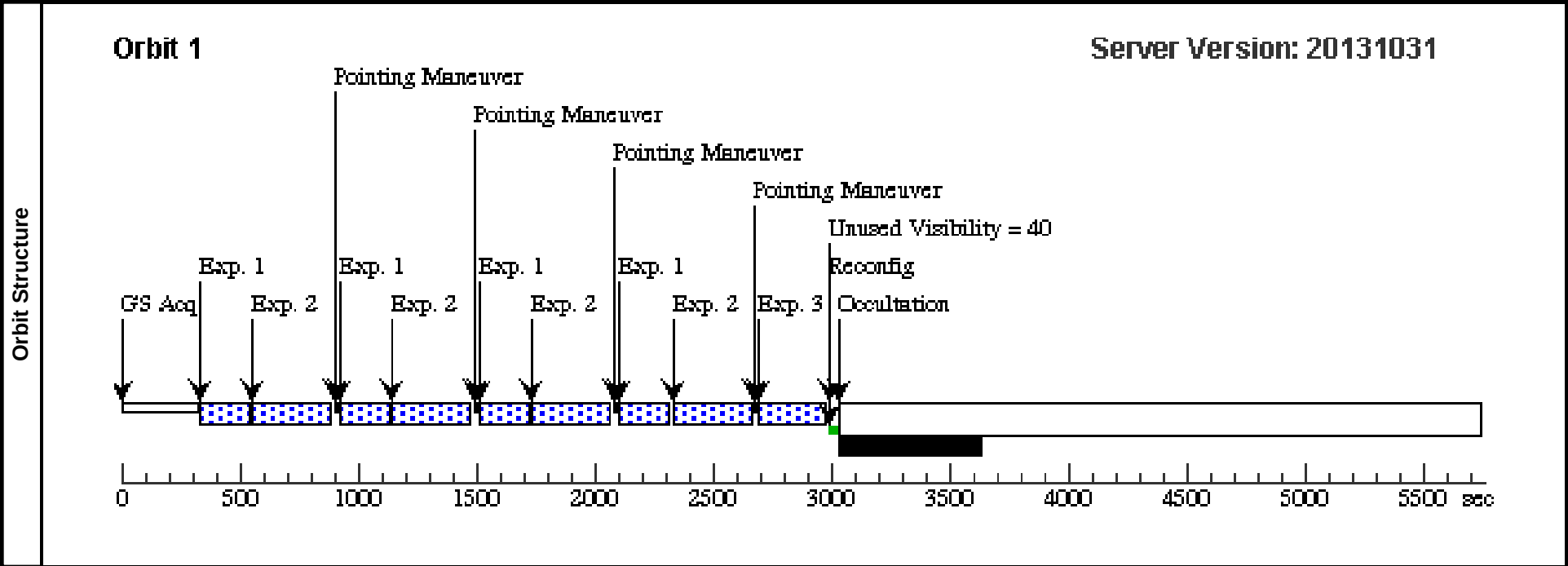
|               |                                                                                                                                         |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|--|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit         | Proposal 13046, Visit Q1                                                                                                                |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:16:10 GMT 2013 |       |
|               | Diagnostic Status: No Diagnostics                                                                                                       |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|               | Scientific Instruments: WFC3/IR                                                                                                         |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|               | Special Requirements: SCHED 100%; BETWEEN 07-JUL-2013:00:00:00 AND 17-JUL-2013:00:00:00; ON HOLD                                        |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
|               | Comments: single quide star acq is acceptable<br>please try to schedule as early in between window as possible<br>On Hold Comments: too |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns      | #                                                                                                                                       | Primary Pattern                                                                                                          |                   |                                                                                                               |  | Secondary Pattern        |                                |               |                                     | Exposures                                                                    |                              |       |
|               | (1)                                                                                                                                     | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |  |                          |                                |               |                                     | (1-2)                                                                        |                              |       |
| Fixed Targets | #                                                                                                                                       | Name                                                                                                                     |                   | Target Coordinates                                                                                            |  | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|               | (101)                                                                                                                                   | PS1-F520188                                                                                                              |                   | RA: 14 22 5.7670 (215.5240292d)<br>Dec: +52 32 40.71 (52.54464d)<br>Equinox: J2000                            |  |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|               | Comments: PS1-13bvc (2013-F-520188)                                                                                                     |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures     | #                                                                                                                                       | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                                                          |  | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|               | 1                                                                                                                                       |                                                                                                                          | (101) PS1-F520188 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit Q1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|               |                                                                                                                                         |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|               | 2                                                                                                                                       |                                                                                                                          | (101) PS1-F520188 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit Q1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|               |                                                                                                                                         |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|               | 3                                                                                                                                       |                                                                                                                          | (101) PS1-F520188 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 |  | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|               |                                                                                                                                         |                                                                                                                          |                   |                                                                                                               |  |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |





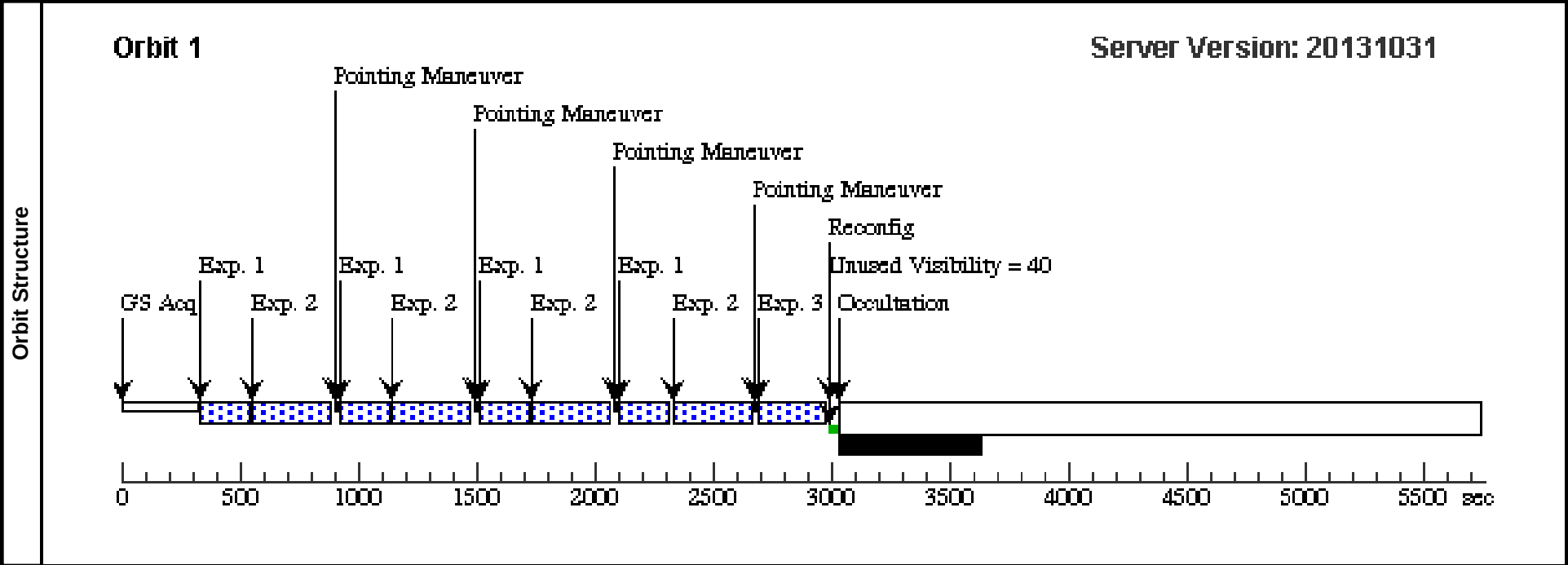
# Proposal 13046 - Visit Q2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|-----------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-----------|--|
| Visit                 | Proposal 13046, Visit Q2                                          |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:16:10 GMT 2013 |           |  |
|                       | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|                       | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|                       | Special Requirements: SCHED 100%; AFTER Q1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|                       | Comments: single quide star acq is acceptable                     |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
| On Hold Comments: too |                                                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
| Patterns              | #                                                                 | Primary Pattern                                                                                                          |                   |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              |                              | Exposures |  |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              |                              | (1-2)     |  |
| Fixed Targets         | #                                                                 | Name                                                                                                                     |                   | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |           |  |
|                       | (101)                                                             | PS1-F520188                                                                                                              |                   | RA: 14 22 5.7670 (215.5240292d)<br>Dec: +52 32 40.71 (52.54464d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |           |  |
|                       | Comments: PS1-13bvc (2013-F-520188)                               |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
|                       |                                                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |           |  |
| Exposures             | #                                                                 | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit     |  |
|                       | 1                                                                 |                                                                                                                          | (101) PS1-F520188 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit Q2 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |           |  |
|                       |                                                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]       |  |
|                       | 2                                                                 |                                                                                                                          | (101) PS1-F520188 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit Q2 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |           |  |
|                       |                                                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]       |  |
|                       | 3                                                                 |                                                                                                                          | (101) PS1-F520188 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |           |  |
|                       |                                                                   |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]       |  |



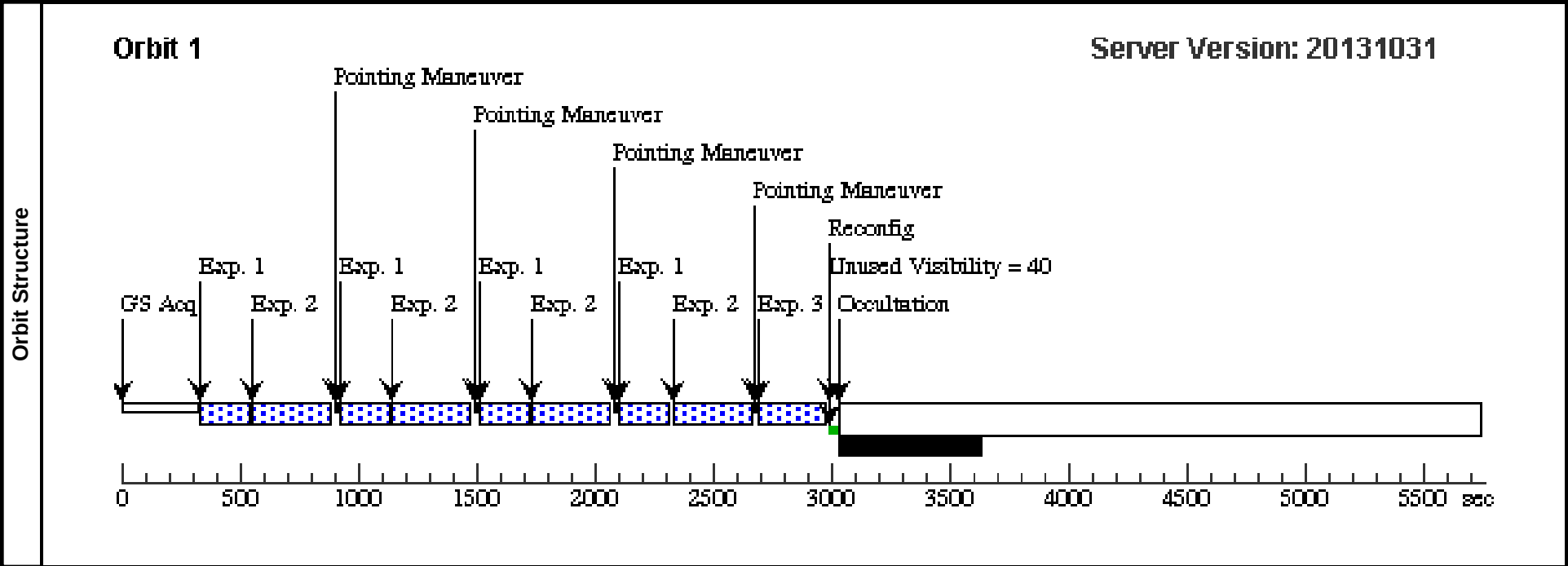
# Proposal 13046 - Visit Q3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|-----------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------|------------------------------------------------------------------------------|--|------------------------------|--|
| Visit                 | Proposal 13046, Visit Q3                                            |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  | Tue Nov 26 02:16:11 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Special Requirements: SCHED 100%; AFTER Q1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Comments: single quide star acq is acceptable                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| On Hold Comments: too |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Patterns              | #                                                                   | Primary Pattern                                                                                                          |                                                                                    |                               |                                                                                                               |                                | Secondary Pattern |                                     |                                                                              |  | Exposures                    |  |
|                       | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                     |                                                                              |  | (1-2)                        |  |
| Fixed Targets         | #                                                                   | Name                                                                                                                     | Target Coordinates                                                                 |                               | Targ. Coord. Corrections                                                                                      |                                | Fluxes            |                                     | Miscellaneous                                                                |  |                              |  |
|                       | (101)                                                               | PS1-F520188                                                                                                              | RA: 14 22 5.7670 (215.5240292d)<br>Dec: +52 32 40.71 (52.54464d)<br>Equinox: J2000 |                               |                                                                                                               |                                | V=23              |                                     | Reference Frame: ICRS                                                        |  |                              |  |
|                       | Comments: PS1-13bvc (2013-F-520188)                                 |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Exposures             | #                                                                   | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |  | Orbit                        |  |
|                       | 1                                                                   |                                                                                                                          | (101) PS1-F520188                                                                  | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 in Visit Q3 (1) | 184.223035 Secs (736.892 Secs)                                               |  |                              |  |
|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 2                                                                   |                                                                                                                          | (101) PS1-F520188                                                                  | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 in Visit Q3 (1) | 321.750541 Secs (1287.002 Secs)                                              |  |                              |  |
|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 3                                                                   |                                                                                                                          | (101) PS1-F520188                                                                  | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                     | 252.986788 Secs (252.987 Secs)                                               |  |                              |  |
|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>]                                                                        |  | [1]                          |  |



# Proposal 13046 - Visit Q4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

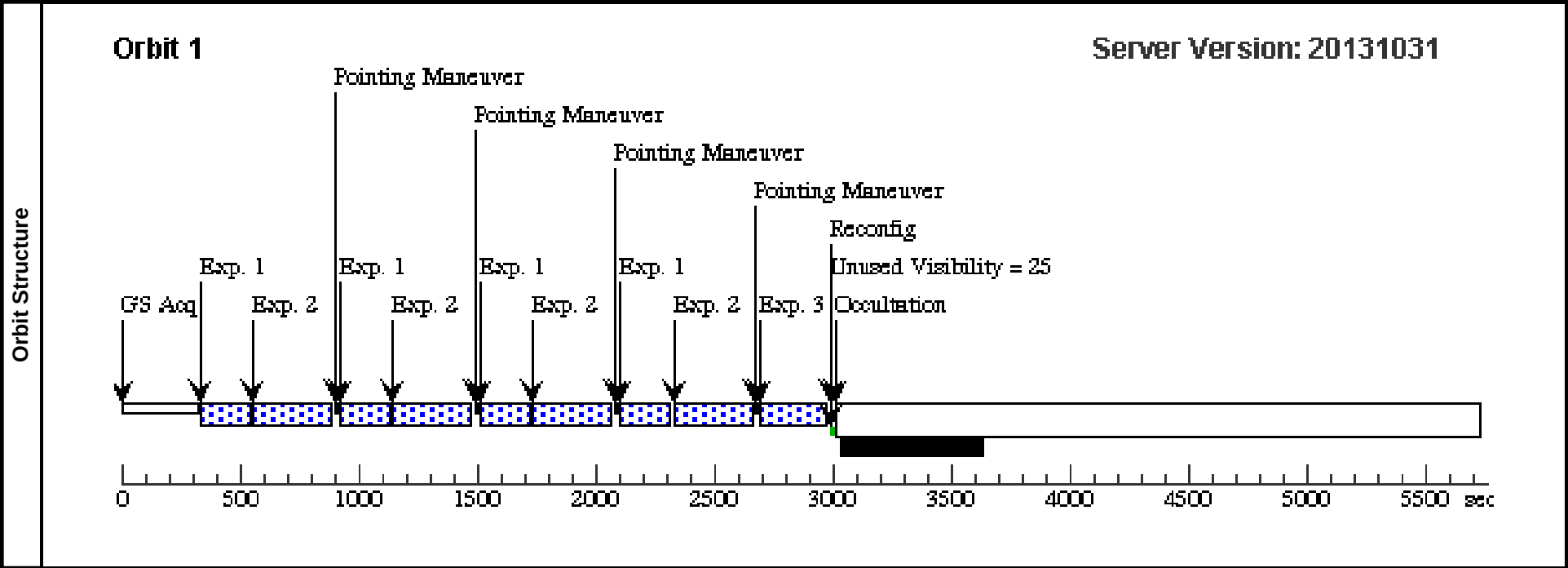
|                                     |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
|-------------------------------------|-----------------------------------------------------------------------|-------------------------------------|---------------------------------|-------------------------------|--------------------------|--------------------|-------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|
| Visit                               | Proposal 13046, Visit Q4                                              |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           | Tue Nov 26 02:16:11 GMT 2013 |  |
|                                     | Diagnostic Status: No Diagnostics                                     |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
|                                     | Scientific Instruments: WFC3/IR                                       |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
|                                     | Special Requirements: SCHED 100%; AFTER Q1 BY 180 D TO 300 D; ON HOLD |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
|                                     | Comments: single quide star acq is acceptable                         |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| On Hold Comments: too               |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Patterns                            | #                                                                     | Primary Pattern                     |                                 |                               |                          | Secondary Pattern  |                   |                                     |                                 | Exposures |                              |  |
|                                     | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                 | Coordinate Frame=POS-TARG     |                          |                    |                   |                                     |                                 | (1-2)     |                              |  |
| Purpose=DITHER                      |                                                                       | Pattern Orientation=18.528          |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Number Of Points=4                  |                                                                       | Angle Between Sides=74.653          |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Point Spacing=0.572                 |                                                                       | Center Pattern=false                |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Line Spacing=0.365                  |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Fixed Targets                       | #                                                                     | Name                                | Target Coordinates              |                               | Targ. Coord. Corrections |                    | Fluxes            |                                     | Miscellaneous                   |           |                              |  |
|                                     | (101)                                                                 | PS1-F520188                         | RA: 14 22 5.7670 (215.5240292d) |                               |                          |                    | V=23              |                                     | Reference Frame: ICRS           |           |                              |  |
|                                     | Dec: +52 32 40.71 (52.54464d)                                         |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
|                                     | Equinox: J2000                                                        |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Comments: PS1-13bvc (2013-F-520188) |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     |                                 |           |                              |  |
| Exposures                           | #                                                                     | Label                               | Target                          | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                                     | 1                                                                     |                                     | (101) PS1-F520188               | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9           | Pattern 1, Exps 1-2 in Visit Q4 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     | [==>(Pattern 1)]                |           |                              |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     | [==>(Pattern 2)]                |           |                              |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     | [==>(Pattern 3)]                |           |                              |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    |                   | [==>(Pattern 4)]                    |                                 |           |                              |  |
|                                     | 2                                                                     |                                     | (101) PS1-F520188               | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 | Pattern 1, Exps 1-2 in Visit Q4 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    | [==>(Pattern 1)]  |                                     |                                 |           |                              |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    | [==>(Pattern 2)]  |                                     |                                 |           |                              |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    | [==>(Pattern 3)]  |                                     |                                 |           |                              |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    | [==>(Pattern 4)]  |                                     |                                 |           |                              |  |
| 3                                   |                                                                       | (101) PS1-F520188                   | WFC3/IR, MULTIACCUM, IRSUB512   | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |                   |                                     | 252.986788 Secs (252.987 Secs)  |           | [1]                          |  |
|                                     |                                                                       |                                     |                                 |                               |                          |                    |                   |                                     | [==>]                           |           |                              |  |



# Proposal 13046 - Visit R1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

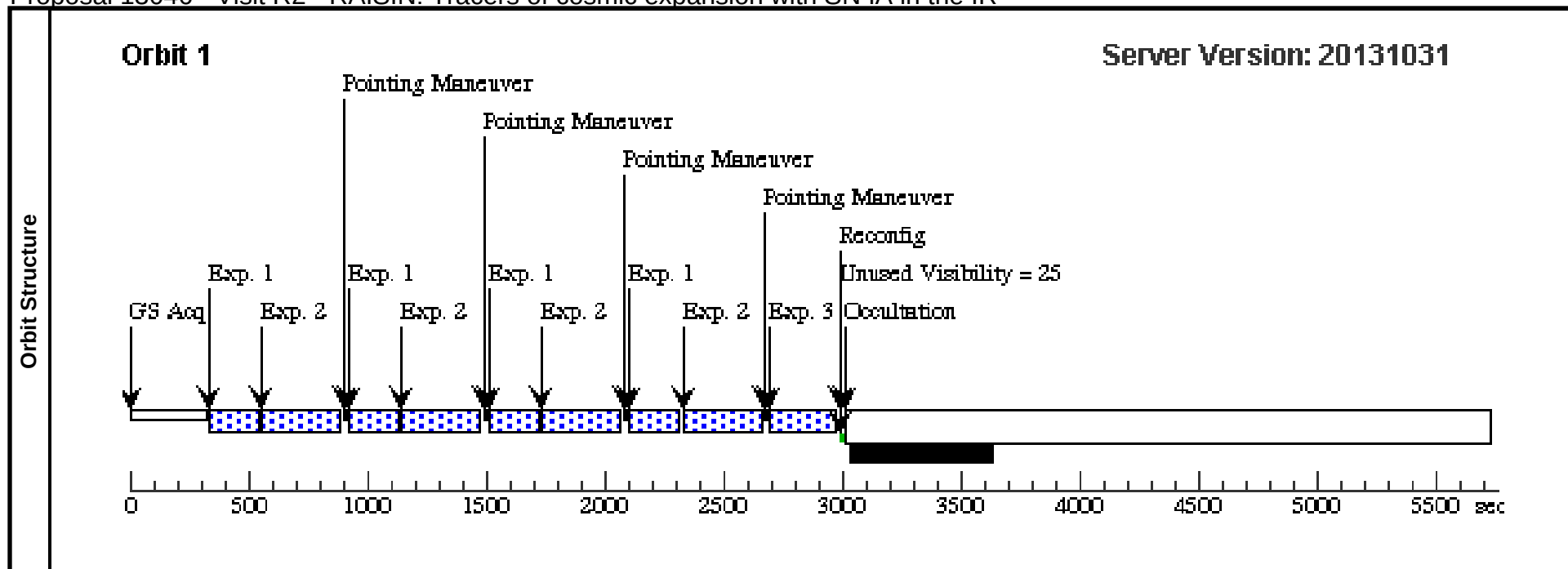
|               |                                                                                                                                                                                                                                         |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     |                                                                              |       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-------|
| Visit         | <b>Proposal 13046, Visit R1</b> <span style="float: right;">Tue Nov 26 02:16:11 GMT 2013</span>                                                                                                                                         |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     |                                                                              |       |
|               | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SCHED 100%; BETWEEN 29-JUL-2013 AND 05-AUG-2013; ON HOLD<br>Comments: single quide star acq is acceptable<br>On Hold Comments: too |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     |                                                                              |       |
| Patterns      | #                                                                                                                                                                                                                                       | Primary Pattern                                                                                                          |                                                                                    |                               |                          | Secondary Pattern                                                                                             |               |                                     | Exposures                                                                    |       |
|               | (1)                                                                                                                                                                                                                                     | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                               |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     | (1-2)                                                                        |       |
| Fixed Targets | #                                                                                                                                                                                                                                       | Name                                                                                                                     | Target Coordinates                                                                 |                               | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                |       |
|               | (17)                                                                                                                                                                                                                                    | PS1-G530251                                                                                                              | RA: 22 18 32.2260 (334.6342750d)<br>Dec: +01 06 53.61 (1.11489d)<br>Equinox: J2000 |                               |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                        |       |
| Exposures     | #                                                                                                                                                                                                                                       | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|               | 1                                                                                                                                                                                                                                       |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9                                                                                 |               | Pattern 1, Exps 1-2 in Visit R1 (1) | 184.223035 Secs (736.892 Secs)                                               |       |
|               |                                                                                                                                                                                                                                         |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|               | 2                                                                                                                                                                                                                                       |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25                                                                                |               | Pattern 1, Exps 1-2 in Visit R1 (1) | 321.750541 Secs (1287.002 Secs)                                              |       |
|               |                                                                                                                                                                                                                                         |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|               | 3                                                                                                                                                                                                                                       |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12                                                                                |               |                                     | 252.986788 Secs (252.987 Secs)                                               |       |
|               |                                                                                                                                                                                                                                         |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     | [==>]                                                                        | [1]   |





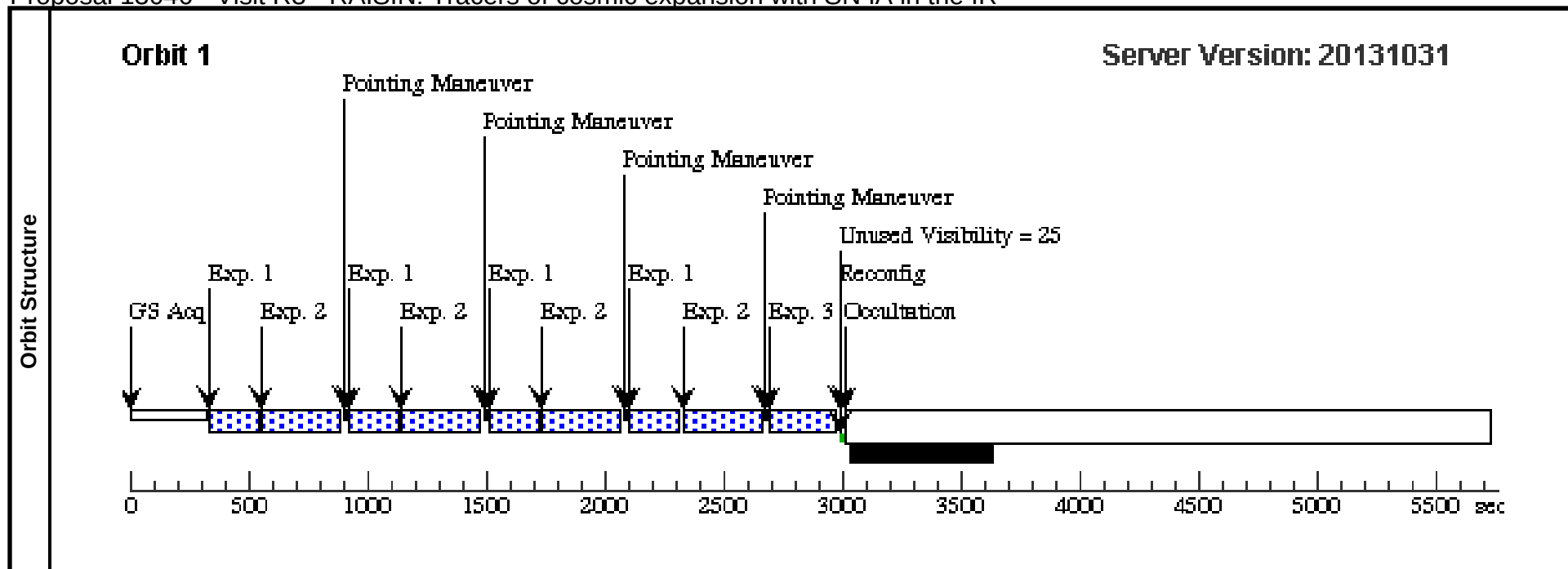
# Proposal 13046 - Visit R2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|-----------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------|--------------------------------------|--------------------------------------|---------------------------------|------------------------------|
| Visit                 | Proposal 13046, Visit R2                                          |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 | Tue Nov 26 02:16:12 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       | Special Requirements: SCHED 100%; AFTER R1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| On Hold Comments: too |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Patterns              | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                   |                                      |                                      | Exposures                       |                              |
|                       | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                   |                                      |                                      | (1-2)                           |                              |
| Purpose=DITHER        |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Number Of Points=4    |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Point Spacing=0.572   |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Line Spacing=0.365    |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Fixed Targets         | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes            |                                      | Miscellaneous                        |                                 |                              |
|                       | (17)                                                              | PS1-G530251                         | RA: 22 18 32.2260 (334.6342750d) |                               |                          |                    | V=23              |                                      | Reference Frame: ICRS                |                                 |                              |
|                       |                                                                   | Dec: +01 06 53.61 (1.11489d)        |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
|                       |                                                                   | Equinox: J2000                      |                                  |                               |                          |                    |                   |                                      |                                      |                                 |                              |
| Exposures             | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.     | Groups                               | Exp. Time (Total)/[Actual Dur.]      |                                 | Orbit                        |
|                       | 1                                                                 |                                     | (17) PS1-G530251                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; |                   | Pattern 1, Exps 1-2 i n Visit R2 (1) | 184.223035 Secs (736.892 Secs)       |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          | NSAMP=9            |                   |                                      | [==>(Pattern 1)]                     |                                 | [1]                          |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 2)]                     |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 3)]                     |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 4)]                     |                                 |                              |
|                       | 2                                                                 |                                     | (17) PS1-G530251                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;          | SAMP-SEQ=SPAR S25 |                                      | Pattern 1, Exps 1-2 i n Visit R2 (1) | 321.750541 Secs (1287.002 Secs) |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 1)]                     |                                 | [1]                          |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 2)]                     |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 3)]                     |                                 |                              |
|                       |                                                                   |                                     |                                  |                               |                          |                    |                   |                                      | [==>(Pattern 4)]                     |                                 |                              |
| 3                     |                                                                   | (17) PS1-G530251                    | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                   |                                      | 252.986788 Secs (252.987 Secs)       |                                 |                              |
|                       |                                                                   |                                     |                                  |                               | NSAMP=12                 |                    |                   |                                      | [==>]                                |                                 | [1]                          |



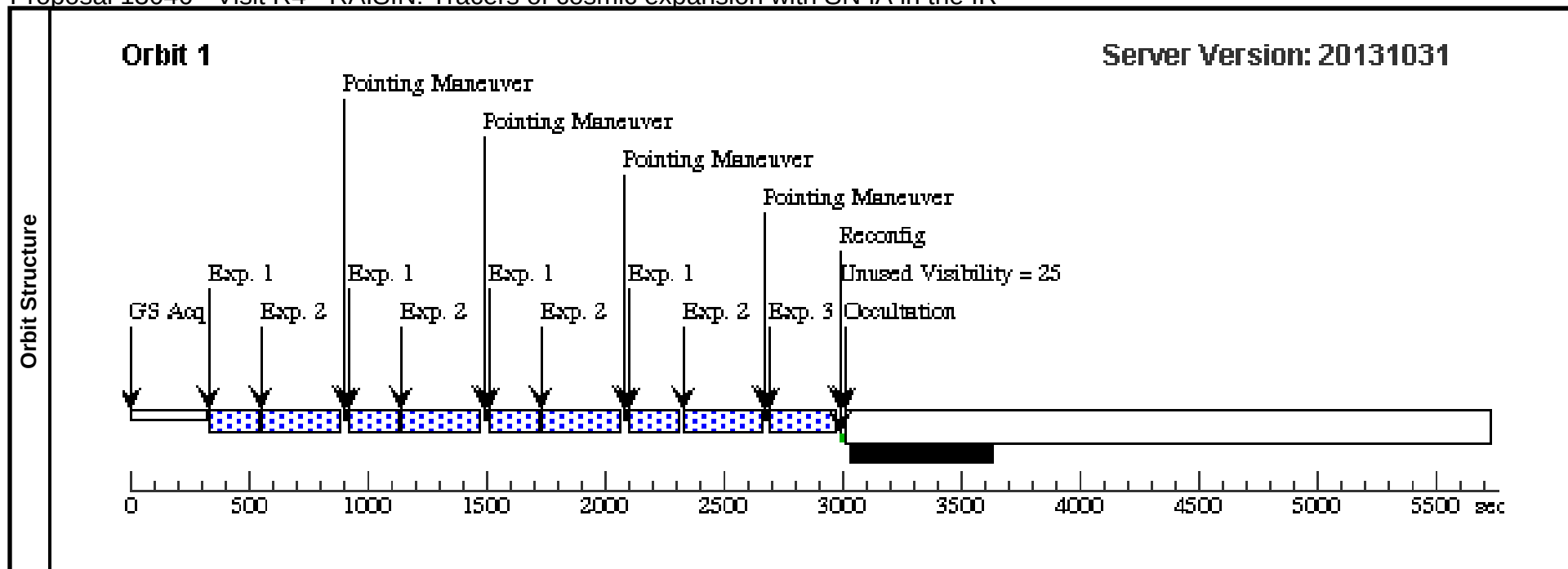
# Proposal 13046 - Visit R3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|-----------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------|------------------------------------------------------------------------------|--|------------------------------|--|
| Visit                 | Proposal 13046, Visit R3                                            |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  | Tue Nov 26 02:16:12 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Special Requirements: SCHED 100%; AFTER R1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Comments: single quide star acq is acceptable                       |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| On Hold Comments: too |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Patterns              | #                                                                   | Primary Pattern                                                                                                          |                                                                                    |                               |                                                                                                               |                                | Secondary Pattern |                                     |                                                                              |  | Exposures                    |  |
|                       | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                     |                                                                              |  | (1-2)                        |  |
| Fixed Targets         | #                                                                   | Name                                                                                                                     | Target Coordinates                                                                 |                               | Targ. Coord. Corrections                                                                                      |                                | Fluxes            |                                     | Miscellaneous                                                                |  |                              |  |
|                       | (17)                                                                | PS1-G530251                                                                                                              | RA: 22 18 32.2260 (334.6342750d)<br>Dec: +01 06 53.61 (1.11489d)<br>Equinox: J2000 |                               |                                                                                                               |                                | V=23              |                                     | Reference Frame: ICRS                                                        |  |                              |  |
| Exposures             | #                                                                   | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |  | Orbit                        |  |
|                       | 1                                                                   |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 in Visit R3 (1) | 184.223035 Secs (736.892 Secs)                                               |  |                              |  |
|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 2                                                                   |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 in Visit R3 (1) | 321.750541 Secs (1287.002 Secs)                                              |  |                              |  |
|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 3                                                                   |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                     | 252.986788 Secs (252.987 Secs)                                               |  |                              |  |
|                       |                                                                     |                                                                                                                          |                                                                                    |                               |                                                                                                               |                                |                   |                                     | [==>]                                                                        |  | [1]                          |  |



# Proposal 13046 - Visit R4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|               |                                                                                                                                                                                                                                |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     |                                                                              |       |
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| Visit         | <b>Proposal 13046, Visit R4</b> <span style="float: right;">Tue Nov 26 02:16:13 GMT 2013</span>                                                                                                                                |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     |                                                                              |       |
|               | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SCHED 100%; AFTER R1 BY 180 D TO 300 D; ON HOLD<br>Comments: single quide star acq is acceptable<br>On Hold Comments: too |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     |                                                                              |       |
| Patterns      | #                                                                                                                                                                                                                              | Primary Pattern                                                                                                          |                                                                                    |                               |                          | Secondary Pattern                                                                                             |               |                                     | Exposures                                                                    |       |
|               | (1)                                                                                                                                                                                                                            | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                               |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     | (1-2)                                                                        |       |
| Fixed Targets | #                                                                                                                                                                                                                              | Name                                                                                                                     | Target Coordinates                                                                 |                               | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                |       |
|               | (17)                                                                                                                                                                                                                           | PS1-G530251                                                                                                              | RA: 22 18 32.2260 (334.6342750d)<br>Dec: +01 06 53.61 (1.11489d)<br>Equinox: J2000 |                               |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                        |       |
| Exposures     | #                                                                                                                                                                                                                              | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|               | 1                                                                                                                                                                                                                              |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9                                                                                 |               | Pattern 1, Exps 1-2 in Visit R4 (1) | 184.223035 Secs (736.892 Secs)                                               |       |
|               |                                                                                                                                                                                                                                |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|               | 2                                                                                                                                                                                                                              |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25                                                                                |               | Pattern 1, Exps 1-2 in Visit R4 (1) | 321.750541 Secs (1287.002 Secs)                                              |       |
|               |                                                                                                                                                                                                                                |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|               | 3                                                                                                                                                                                                                              |                                                                                                                          | (17) PS1-G530251                                                                   | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12                                                                                |               |                                     | 252.986788 Secs (252.987 Secs)                                               |       |
|               |                                                                                                                                                                                                                                |                                                                                                                          |                                                                                    |                               |                          |                                                                                                               |               |                                     | [==>]                                                                        | [1]   |



# Proposal 13046 - Visit S1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:13 GMT 2013

|                                               |                                                                                                  |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                                         | Proposal 13046, Visit S1                                                                         |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           | Tue Nov 26 02:16:13 GMT 2013 |                          |
|                                               | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
|                                               | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
|                                               | Special Requirements: SCHED 100%; BETWEEN 11-AUG-2013:00:00:00 AND 21-AUG-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
| Comments: single quide star acq is acceptable |                                                                                                  |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
| On Hold Comments: too                         |                                                                                                  |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
| Patterns                                      | #                                                                                                | Primary Pattern                                                                                                          |                                                                                    |                         |                          | Secondary Pattern                                                                                             |               |                                     |                                                                                                                 | Exposures |                              |                          |
|                                               | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     |                                                                                                                 | (1)       |                              |                          |
| Fixed Targets                                 | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                 |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                                                   |           |                              |                          |
|                                               | (102)                                                                                            | PS1-H540118                                                                                                              | RA: 23 27 17.4180 (351.8225750d)<br>Dec: -00 02 53.05 (-.04807d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                                                           |           |                              |                          |
|                                               | Comments: 2013-H-540118                                                                          |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |
| Exposures                                     | #                                                                                                | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |                          |
|                                               | 1                                                                                                |                                                                                                                          | (102) PS1-H540118                                                                  | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             |               | Pattern 1, Exps 1-1 in Visit S1 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure                               | Orbit 1                                                                                          |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              | Server Version: 20131031 |
|                                               |                                                                                                  |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |                          |



# Proposal 13046 - Visit S2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:13 GMT 2013

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                      |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------|-------|
| Visit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Proposal 13046, Visit S2                                                             |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Diagnostic Status: No Diagnostics                                                    |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Scientific Instruments: WFC3/IR                                                      |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Special Requirements: SCHED 100%; SAME ORIENT AS S1; AFTER S1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Comments: single guide star acq is acceptable                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
| On Hold Comments: too                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
| Patterns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | #                                                                                    | Primary Pattern                                                                                                          |                                                                                    |                         |                          | Secondary Pattern                                                                                             |               |                                     |                                                                                                             | Exposures |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (1)                                                                                  | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     |                                                                                                             | (1)       |       |
| Fixed Targets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | #                                                                                    | Name                                                                                                                     | Target Coordinates                                                                 |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                                               |           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (102)                                                                                | PS1-H540118                                                                                                              | RA: 23 27 17.4180 (351.8225750d)<br>Dec: -00 02 53.05 (-.04807d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                                                       |           |       |
| Comments: 2013-H-540118                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                      |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
| Exposures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | #                                                                                    | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                             |           | Orbit |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1                                                                                    |                                                                                                                          | (102) PS1-H540118                                                                  | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             |               | Pattern 1, Exps 1-1 in Visit S2 (1) | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] |           | [1]   |
| Orbit Structure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Orbit 1                                                                              |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Server Version: 20131031                                                             |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |
| <p>The diagram illustrates the timeline of the observation. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked with arrows: GS Acq (at ~100s), Exp. 1 (at ~300s, ~1000s, ~1650s, ~2300s, and ~3000s), Pointing Maneuver (at ~1000s, ~1650s, and ~2300s), Reconfig (at ~3000s), and Occultation (at ~3000s). A blue checkered bar highlights the exposure period from approximately 300s to 3000s. A green bar highlights the occultation period from 3000s to 3400s. A black bar highlights the unused visibility period from 3400s to 3500s. The total duration of the observation is 5500 seconds.</p> |                                                                                      |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |       |

# Proposal 13046 - Visit S3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:14 GMT 2013

|                                               |                                                                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|-----------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                                         | Proposal 13046, Visit S3                                                               |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           | Tue Nov 26 02:16:14 GMT 2013 |                          |
|                                               | Diagnostic Status: No Diagnostics                                                      |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|                                               | Scientific Instruments: WFC3/IR                                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|                                               | Special Requirements: SCHED 100%; SAME ORIENT AS S1; AFTER S1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| Comments: single guide star acq is acceptable |                                                                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| On Hold Comments: too                         |                                                                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| Patterns                                      | #                                                                                      | Primary Pattern                                                                                                          |                                                                                    |                         |                          | Secondary Pattern                                                                                             |               |                                     |                                                                                                             | Exposures |                              |                          |
|                                               | (1)                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     |                                                                                                             | (1)       |                              |                          |
| Fixed Targets                                 | #                                                                                      | Name                                                                                                                     | Target Coordinates                                                                 |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                                               |           |                              |                          |
|                                               | (102)                                                                                  | PS1-H540118                                                                                                              | RA: 23 27 17.4180 (351.8225750d)<br>Dec: -00 02 53.05 (-.04807d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                                                       |           |                              |                          |
| Comments: 2013-H-540118                       |                                                                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| Exposures                                     | #                                                                                      | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                             |           | Orbit                        |                          |
|                                               | 1                                                                                      |                                                                                                                          | (102) PS1-H540118                                                                  | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             |               | Pattern 1, Exps 1-1 in Visit S3 (1) | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure                               | Orbit 1                                                                                |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              | Server Version: 20131031 |
|                                               |                                                                                        |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |

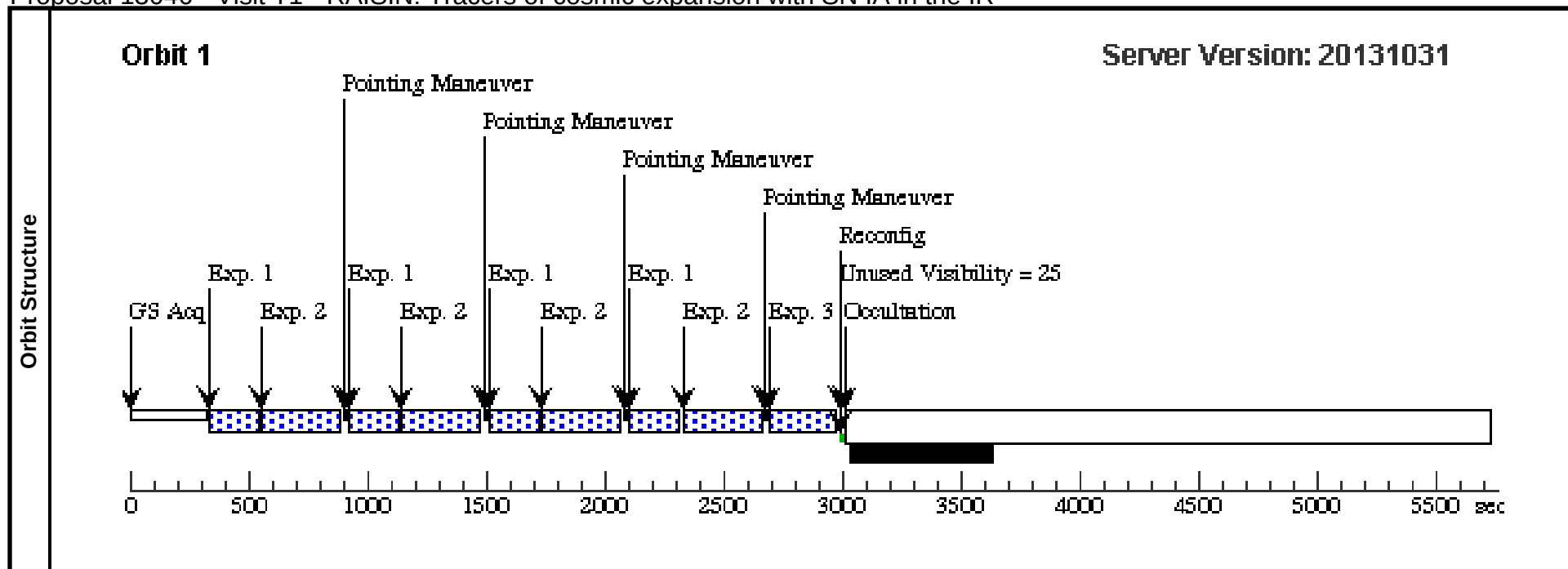
# Proposal 13046 - Visit S4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:14 GMT 2013

|                         |                                                                       |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
|-------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit S4                                              |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           | Tue Nov 26 02:16:14 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
|                         | Special Requirements: SCHED 100%; AFTER S1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                         |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
| On Hold Comments: too   |                                                                       |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
| Patterns                | #                                                                     | Primary Pattern                                                                                                          |                                                                                    |                         |                          | Secondary Pattern                                                                                             |               |                                     |                                                                                                                 | Exposures |                              |
|                         | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     |                                                                                                                 | (1)       |                              |
| Fixed Targets           | #                                                                     | Name                                                                                                                     | Target Coordinates                                                                 |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                                                   |           |                              |
|                         | (102)                                                                 | PS1-H540118                                                                                                              | RA: 23 27 17.4180 (351.8225750d)<br>Dec: -00 02 53.05 (-.04807d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                                                           |           |                              |
| Comments: 2013-H-540118 |                                                                       |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |
| Exposures               | #                                                                     | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                 | Orbit     |                              |
|                         | 1                                                                     |                                                                                                                          | (102) PS1-H540118                                                                  | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             |               | Pattern 1, Exps 1-1 in Visit S4 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]       |                              |
| Orbit Structure         | Orbit 1                                                               |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           | Server Version: 20131031     |
|                         |                                                                       |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                                 |           |                              |

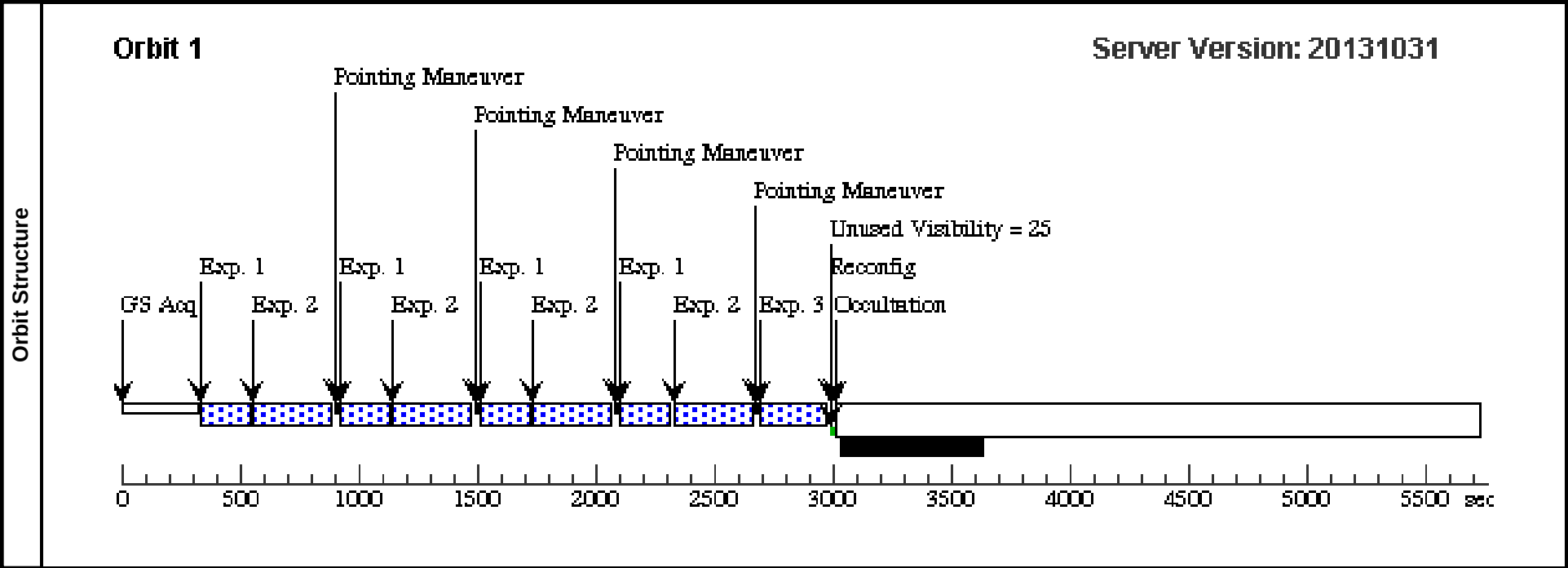
# Proposal 13046 - Visit T1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit T1                                                                         |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           | Tue Nov 26 02:16:14 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; BETWEEN 11-AUG-2013:00:00:00 AND 21-AUG-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                                                                                   |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures |                              |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |           |                              |
|                       | (103)                                                                                            | PS1-H540087                                                                                                              | RA: 22 21 30.3580 (335.3764917d)<br>Dec: +00 07 46.34 (.12954d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: 2013-H-540087                                                                          |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |           |                              |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                                                |                                                                                                                          | (103) PS1-H540087                                                                 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit T1 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                                                |                                                                                                                          | (103) PS1-H540087                                                                 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |               | Pattern 1, Exps 1-2 in Visit T1 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                                                |                                                                                                                          | (103) PS1-H540087                                                                 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit T2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

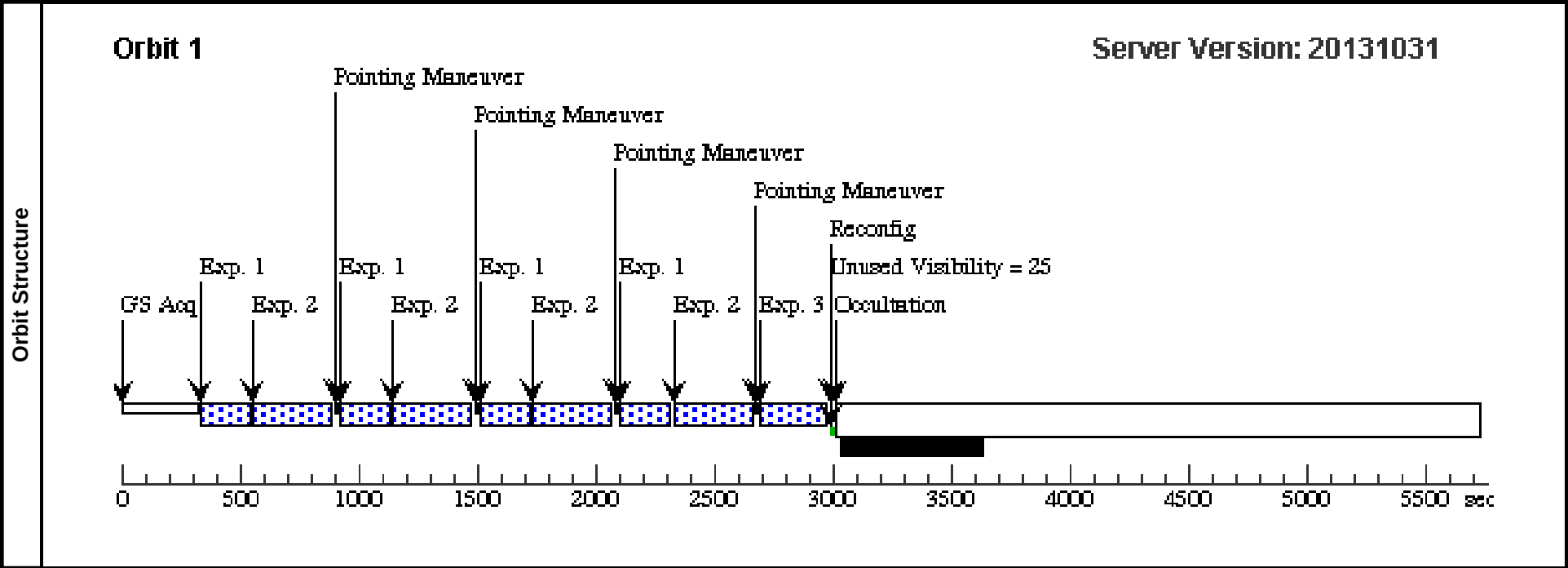
|                       |                                                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|-----------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit T2                                                             |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              | Tue Nov 26 02:16:15 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                                    |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; SAME ORIENT AS T1; AFTER T1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                                        |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Patterns              | #                                                                                    | Primary Pattern                                                                                                          |                   |                                                                                   |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                                                  | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                                    | Name                                                                                                                     |                   | Target Coordinates                                                                |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                                                                |                              |       |
|                       | (103)                                                                                | PS1-H540087                                                                                                              |                   | RA: 22 21 30.3580 (335.3764917d)<br>Dec: +00 07 46.34 (.12954d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-H-540087                                                              |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     |                                                                              |                              |       |
| Exposures             | #                                                                                    | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                              |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                                    |                                                                                                                          | (103) PS1-H540087 | WFC3/IR, MULTIACCUM, IRSUB512                                                     |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |               | Pattern 1, Exps 1-2 in Visit T2 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                                    |                                                                                                                          | (103) PS1-H540087 | WFC3/IR, MULTIACCUM, IRSUB512                                                     |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |               | Pattern 1, Exps 1-2 in Visit T2 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                                    |                                                                                                                          | (103) PS1-H540087 | WFC3/IR, MULTIACCUM, IRSUB512                                                     |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |               |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                          |                                |               |                                     | [==>]                                                                        |                              | [1]   |



# Proposal 13046 - Visit T3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

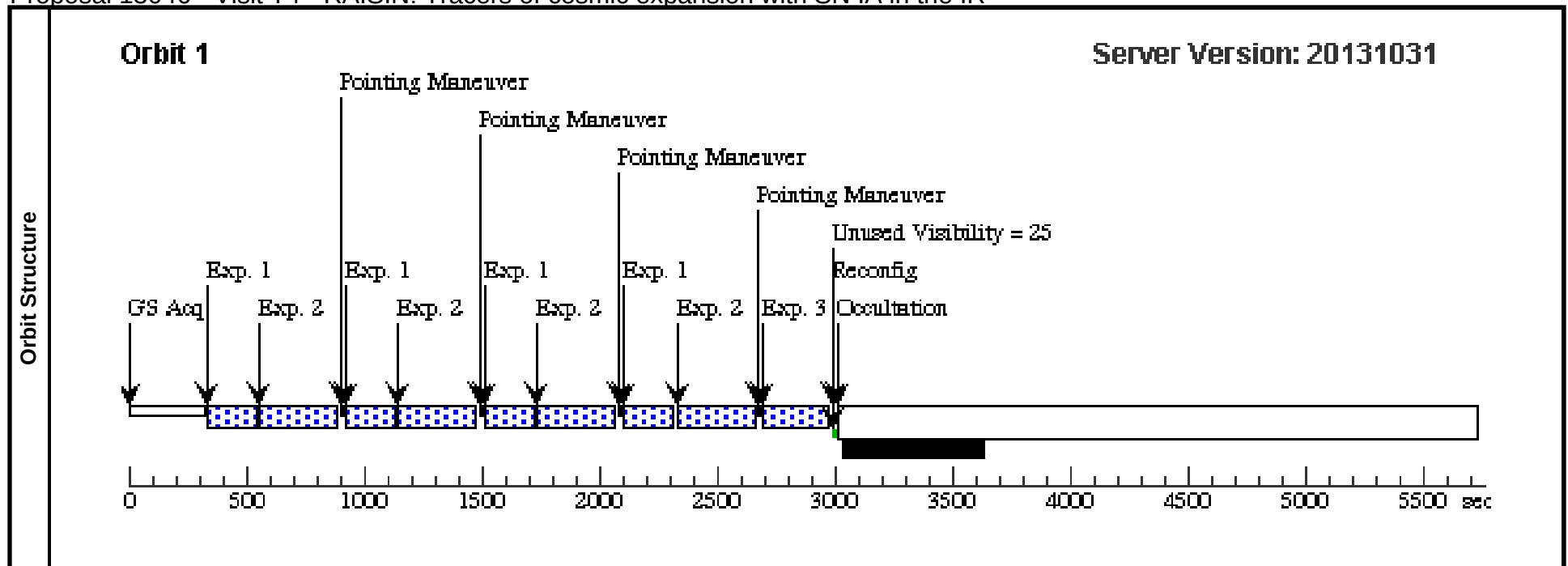
|                       |                                                                                               |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|-----------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|--------------------------------------|------------------------------------------------------------------------------|-----------------------|------------------------------|--|
| Visit                 | Proposal 13046, Visit T3                                                                      |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       | Tue Nov 26 02:16:15 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                                             |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|                       | Scientific Instruments: WFC3/IR                                                               |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|                       | Special Requirements: SCHED 100%; ORIENT -1D TO 1D FROM T1; AFTER T1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
|                       | Comments: single quide star acq is acceptable                                                 |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| On Hold Comments: too |                                                                                               |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| Patterns              | #                                                                                             | Primary Pattern                                                                                                          |                   |                                                                                   |                                                                                                               |                                | Secondary Pattern |                                      |                                                                              |                       | Exposures                    |  |
|                       | (1)                                                                                           | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                      |                                                                              |                       | (1-2)                        |  |
| Fixed Targets         | #                                                                                             | Name                                                                                                                     |                   | Target Coordinates                                                                |                                                                                                               | Targ. Coord. Corrections       |                   | Fluxes                               |                                                                              | Miscellaneous         |                              |  |
|                       | (103)                                                                                         | PS1-H540087                                                                                                              |                   | RA: 22 21 30.3580 (335.3764917d)<br>Dec: +00 07 46.34 (.12954d)<br>Equinox: J2000 |                                                                                                               |                                |                   | V=23                                 |                                                                              | Reference Frame: ICRS |                              |  |
|                       | Comments: 2013-H-540087                                                                       |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      |                                                                              |                       |                              |  |
| Exposures             | #                                                                                             | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                              | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                               | Exp. Time (Total)/[Actual Dur.]                                              |                       | Orbit                        |  |
|                       | 1                                                                                             |                                                                                                                          | (103) PS1-H540087 | WFC3/IR, MULTIACCUM, IRSUB512                                                     | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 i n Visit T3 (1) | 184.223035 Secs (736.892 Secs)                                               |                       |                              |  |
|                       |                                                                                               |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                       | 2                                                                                             |                                                                                                                          | (103) PS1-H540087 | WFC3/IR, MULTIACCUM, IRSUB512                                                     | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                   | Pattern 1, Exps 1-2 i n Visit T3 (1) | 321.750541 Secs (1287.002 Secs)                                              |                       |                              |  |
|                       |                                                                                               |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                       | [1]                          |  |
|                       | 3                                                                                             |                                                                                                                          | (103) PS1-H540087 | WFC3/IR, MULTIACCUM, IRSUB512                                                     | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                      | 252.986788 Secs (252.987 Secs)                                               |                       |                              |  |
|                       |                                                                                               |                                                                                                                          |                   |                                                                                   |                                                                                                               |                                |                   |                                      | [==>]                                                                        |                       | [1]                          |  |





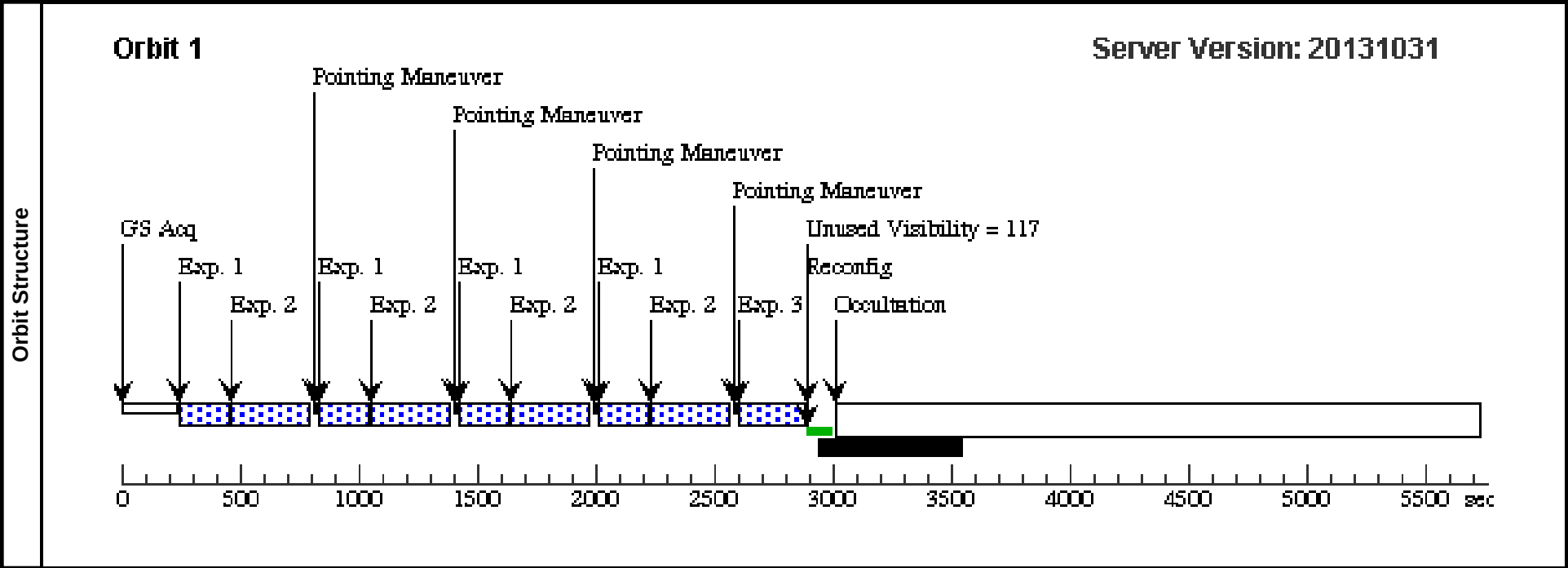
# Proposal 13046 - Visit T4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                       |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|-----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------|------------------------------------------------------------------------------|--|------------------------------|--|
| Visit                 | Proposal 13046, Visit T4                                              |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  | Tue Nov 26 02:16:16 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Special Requirements: SCHED 100%; AFTER T1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
|                       | Comments: single quide star acq is acceptable                         |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| On Hold Comments: too |                                                                       |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Patterns              | #                                                                     | Primary Pattern                                                                                                          |                                                                                   |                               |                                                                                                               |                                | Secondary Pattern |                                     |                                                                              |  | Exposures                    |  |
|                       | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                                |                   |                                     |                                                                              |  | (1-2)                        |  |
| Fixed Targets         | #                                                                     | Name                                                                                                                     | Target Coordinates                                                                |                               | Targ. Coord. Corrections                                                                                      |                                | Fluxes            |                                     | Miscellaneous                                                                |  |                              |  |
|                       | (103)                                                                 | PS1-H540087                                                                                                              | RA: 22 21 30.3580 (335.3764917d)<br>Dec: +00 07 46.34 (.12954d)<br>Equinox: J2000 |                               |                                                                                                               |                                | V=23              |                                     | Reference Frame: ICRS                                                        |  |                              |  |
|                       | Comments: 2013-H-540087                                               |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     |                                                                              |  |                              |  |
| Exposures             | #                                                                     | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture          | Spectral Els.                                                                                                 | Opt. Params.                   | Special Reqs.     | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |  | Orbit                        |  |
|                       | 1                                                                     |                                                                                                                          | (103) PS1-H540087                                                                 | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=9  |                   | Pattern 1, Exps 1-2 in Visit T4 (1) | 184.223035 Secs (736.892 Secs)                                               |  |                              |  |
|                       |                                                                       |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 2                                                                     |                                                                                                                          | (103) PS1-H540087                                                                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPARS25  |                   | Pattern 1, Exps 1-2 in Visit T4 (1) | 321.750541 Secs (1287.002 Secs)                                              |  |                              |  |
|                       |                                                                       |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  | [1]                          |  |
|                       | 3                                                                     |                                                                                                                          | (103) PS1-H540087                                                                 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W                                                                                                         | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                   |                                     | 252.986788 Secs (252.987 Secs)                                               |  |                              |  |
|                       |                                                                       |                                                                                                                          |                                                                                   |                               |                                                                                                               |                                |                   |                                     | [==>]                                                                        |  | [1]                          |  |



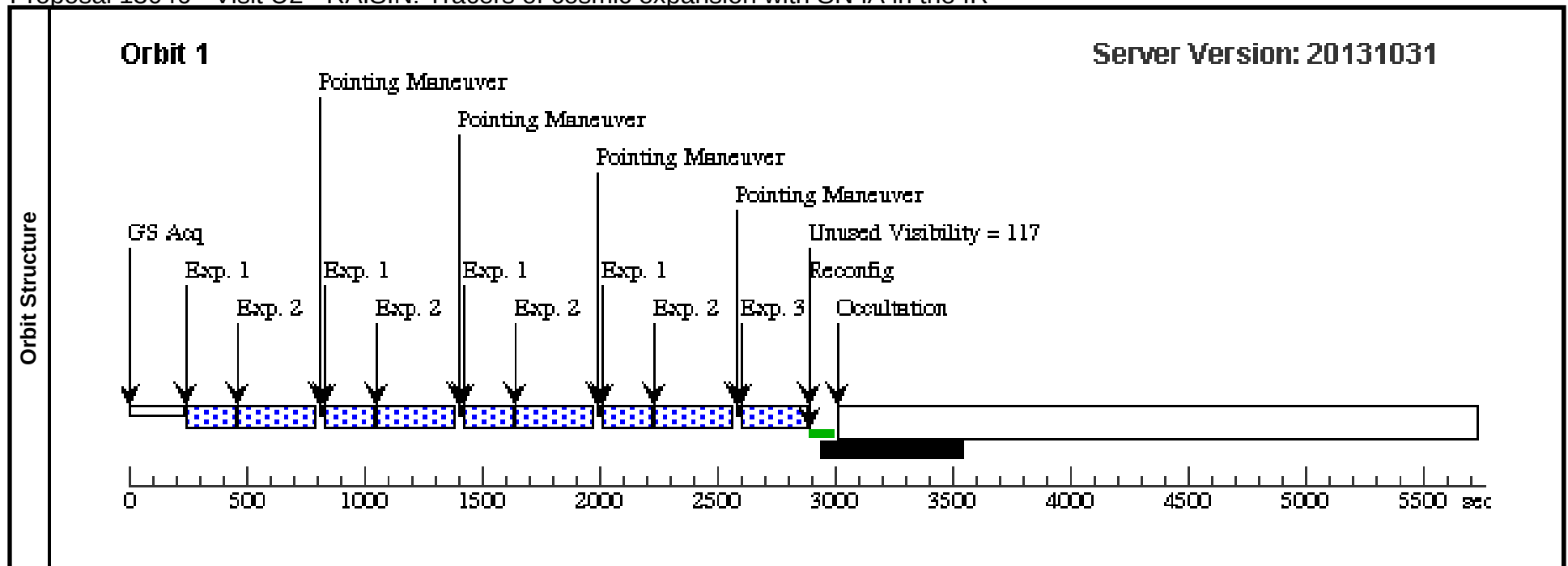
# Proposal 13046 - Visit U1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
|-------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit U1                                                                         |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           | Tue Nov 26 02:16:16 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                                                |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                                                  |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
|                         | Special Requirements: SCHED 100%; BETWEEN 18-AUG-2013:00:00:00 AND 27-AUG-2013:00:00:00; ON HOLD |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                                                    |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| On Hold Comments: too   |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Patterns                | #                                                                                                | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                        |                                     |                                 | Exposures |                              |
|                         | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                        |                                     |                                 | (1-2)     |                              |
| Purpose=DITHER          |                                                                                                  | Pattern Orientation=18.528          |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Number Of Points=4      |                                                                                                  | Angle Between Sides=74.653          |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Point Spacing=0.572     |                                                                                                  | Center Pattern=false                |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Line Spacing=0.365      |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Fixed Targets           | #                                                                                                | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                 |                                     | Miscellaneous                   |           |                              |
|                         | (104)                                                                                            | PS1-H540181                         | RA: 23 29 42.5770 (352.4274042d) |                               |                          |                    | V=23                   |                                     | Reference Frame: ICRS           |           |                              |
|                         | Dec: -01 24 51.05 (-1.41418d)                                                                    |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Equinox: J2000          |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Comments: 2013-H-540181 |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |
| Exposures               | #                                                                                                | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                         | 1                                                                                                |                                     | (104) PS1-H540181                | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit U1 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 1)]                |           |                              |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 2)]                |           |                              |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 3)]                |           |                              |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 4)]                |           |                              |
| 2                       |                                                                                                  | (104) PS1-H540181                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPARS25   |                        | Pattern 1, Exps 1-2 in Visit U1 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 1)]                    |                                 |           |                              |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 2)]                    |                                 |           |                              |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 3)]                    |                                 |           |                              |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 4)]                    |                                 |           |                              |
| 3                       |                                                                                                  | (104) PS1-H540181                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                        |                                     | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                         |                                                                                                  |                                     |                                  |                               |                          |                    |                        | [==>]                               |                                 |           |                              |



# Proposal 13046 - Visit U2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

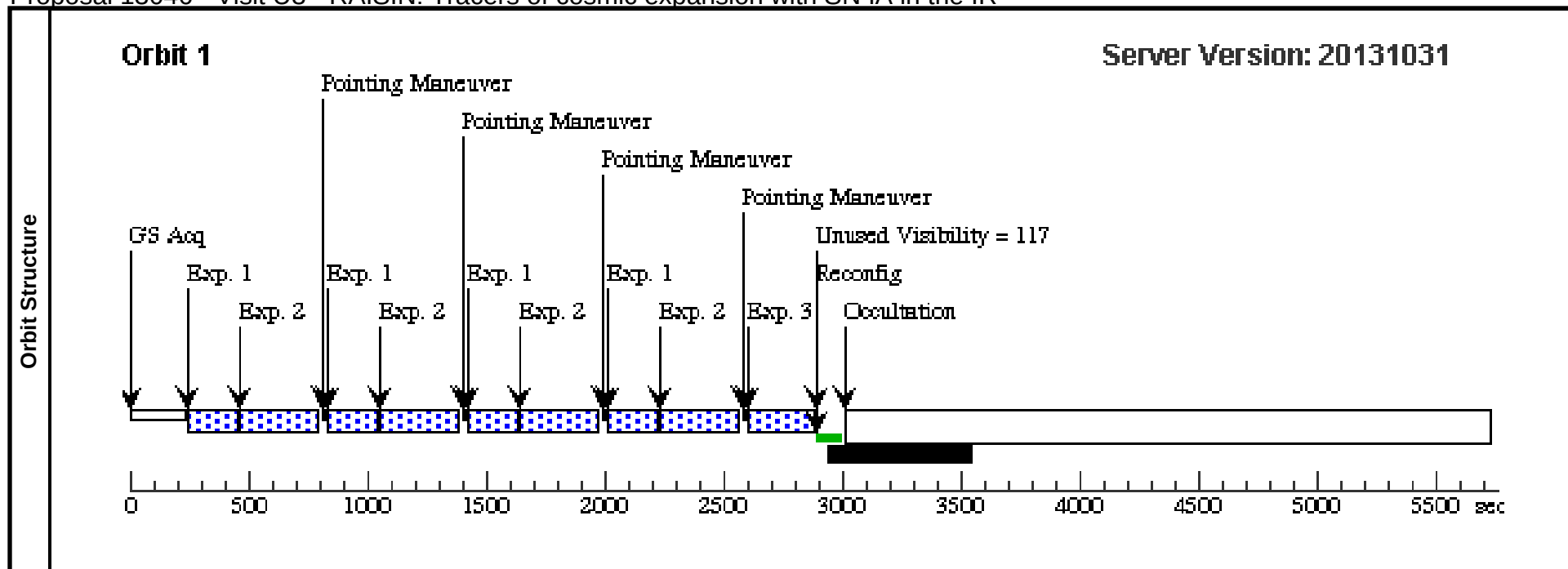
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|-------------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit U2                                          |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           | Tue Nov 26 02:16:16 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|                         | Special Requirements: SCHED 100%; AFTER U1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| On Hold Comments: too   |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Patterns                | #                                                                 | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                         |                                      |                                 | Exposures |                              |
|                         | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                         |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER          |                                                                   | Pattern Orientation=18.528          |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Number Of Points=4      |                                                                   | Angle Between Sides=74.653          |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Point Spacing=0.572     |                                                                   | Center Pattern=false                |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Line Spacing=0.365      |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Fixed Targets           | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                  |                                      | Miscellaneous                   |           |                              |
|                         | (104)                                                             | PS1-H540181                         | RA: 23 29 42.5770 (352.4274042d) |                               |                          |                    | V=23                    |                                      | Reference Frame: ICRS           |           |                              |
|                         | Dec: -01 24 51.05 (-1.41418d)                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Equinox: J2000          |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Comments: 2013-H-540181 |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Exposures               | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.           | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                         | 1                                                                 |                                     | (104) PS1-H540181                | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | GS ACQ SCENARI O SINGLE | Pattern 1, Exps 1-2 i n Visit U2 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 1)]                |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 2)]                |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 3)]                |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 4)]                |           |                              |
| 2                       |                                                                   | (104) PS1-H540181                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |                         | Pattern 1, Exps 1-2 i n Visit U2 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 1)]                     |                                 |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 2)]                     |                                 |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 3)]                     |                                 |           |                              |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                       |                                                                   | (104) PS1-H540181                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                         |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                         |                                                                   |                                     |                                  |                               |                          |                    |                         | [==>]                                |                                 |           |                              |



# Proposal 13046 - Visit U3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

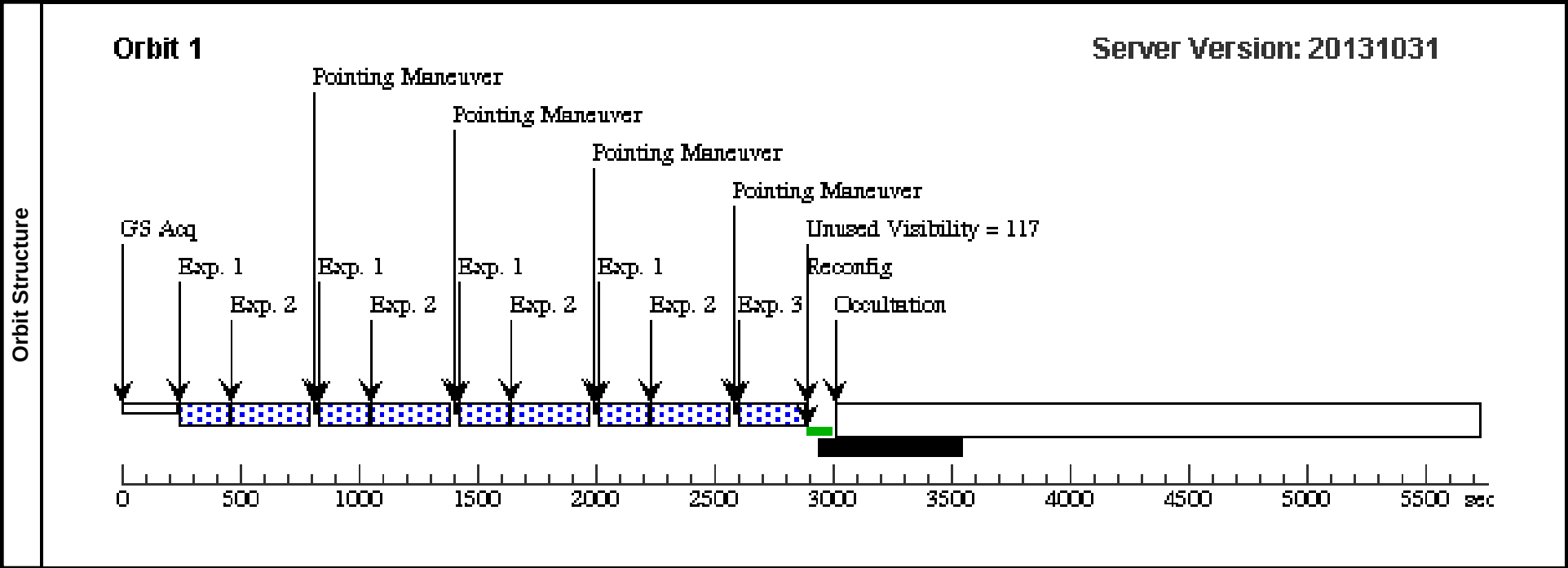
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|-------------------------|---------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|-------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|
| Visit                   | Proposal 13046, Visit U3                                            |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           | Tue Nov 26 02:16:17 GMT 2013 |
|                         | Diagnostic Status: No Diagnostics                                   |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|                         | Scientific Instruments: WFC3/IR                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|                         | Special Requirements: SCHED 100%; AFTER U1 BY 13 D TO 16 D; ON HOLD |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
|                         | Comments: single quide star acq is acceptable                       |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| On Hold Comments: too   |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Patterns                | #                                                                   | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                         |                                      |                                 | Exposures |                              |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                         |                                      |                                 | (1-2)     |                              |
| Purpose=DITHER          |                                                                     | Pattern Orientation=18.528          |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Number Of Points=4      |                                                                     | Angle Between Sides=74.653          |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Point Spacing=0.572     |                                                                     | Center Pattern=false                |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Line Spacing=0.365      |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Fixed Targets           | #                                                                   | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                  |                                      | Miscellaneous                   |           |                              |
|                         | (104)                                                               | PS1-H540181                         | RA: 23 29 42.5770 (352.4274042d) |                               |                          |                    | V=23                    |                                      | Reference Frame: ICRS           |           |                              |
|                         |                                                                     |                                     | Dec: -01 24 51.05 (-1.41418d)    |                               |                          |                    |                         |                                      |                                 |           |                              |
| Equinox: J2000          |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Comments: 2013-H-540181 |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      |                                 |           |                              |
| Exposures               | #                                                                   | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.           | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |
|                         | 1                                                                   |                                     | (104) PS1-H540181                | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | GS ACQ SCENARI O SINGLE | Pattern 1, Exps 1-2 i n Visit U3 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 1)]                |           |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 2)]                |           |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 3)]                |           |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         |                                      | [==>(Pattern 4)]                |           |                              |
| 2                       |                                                                     | (104) PS1-H540181                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |                         | Pattern 1, Exps 1-2 i n Visit U3 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 1)]                     |                                 |           |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 2)]                     |                                 |           |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 3)]                     |                                 |           |                              |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         | [==>(Pattern 4)]                     |                                 |           |                              |
| 3                       |                                                                     | (104) PS1-H540181                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                         |                                      | 252.986788 Secs (252.987 Secs)  |           | [1]                          |
|                         |                                                                     |                                     |                                  |                               |                          |                    |                         | [==>]                                |                                 |           |                              |





# Proposal 13046 - Visit U4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                       |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
|-----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|-------------------------|--------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit U4                                              |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           | Tue Nov 26 02:16:17 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; AFTER U1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                         |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
| On Hold Comments: too |                                                                       |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
| Patterns              | #                                                                     | Primary Pattern                                                                                                          |                                                                                     |                                                                                                               |                          | Secondary Pattern              |                         |                                      |                                                                              | Exposures |                              |
|                       | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                         |                                      |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                     | Name                                                                                                                     | Target Coordinates                                                                  |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                  |                                      | Miscellaneous                                                                |           |                              |
|                       | (104)                                                                 | PS1-H540181                                                                                                              | RA: 23 29 42.5770 (352.4274042d)<br>Dec: -01 24 51.05 (-1.41418d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                    |                                      | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: 2013-H-540181                                               |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      |                                                                              |           |                              |
| Exposures             | #                                                                     | Label                                                                                                                    | Target                                                                              | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs.           | Groups                               | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                     |                                                                                                                          | (104) PS1-H540181                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARI O SINGLE | Pattern 1, Exps 1-2 i n Visit U4 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                       |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                     |                                                                                                                          | (104) PS1-H540181                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                         | Pattern 1, Exps 1-2 i n Visit U4 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                       |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                     |                                                                                                                          | (104) PS1-H540181                                                                   | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                         |                                      | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                       |                                                                                                                          |                                                                                     |                                                                                                               |                          |                                |                         |                                      | [==>]                                                                        |           | [1]                          |



# Proposal 13046 - Visit UA - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:17 GMT 2013

|                                               |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|---------------|--------------------------------|----------------------------|-------------------------------------|-------------------------------------------------------------------------|-----------------------|------------------------------|--|
| Visit                                         | Proposal 13046, Visit UA                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       | Tue Nov 26 02:16:17 GMT 2013 |  |
|                                               | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
|                                               | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
|                                               | Special Requirements: SCHED 100%; ORIENT 228D TO 271 D; BETWEEN 25-AUG-2013:00:00:00 AND 28-AUG-2013:00:00:00; ON HOLD                                                                                                                                                                                                               |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
| Comments: single quide star acq is acceptable |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
| On Hold Comments: too                         |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
| Patterns                                      | #                                                                                                                                                                                                                                                                                                                                    | Primary Pattern                                                                                                                                                                                                             |                    |                                                                                     |               |                                | Secondary Pattern          |                                     |                                                                         |                       | Exposures                    |  |
|                                               | (2)                                                                                                                                                                                                                                                                                                                                  | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing= |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       | (1-2)                        |  |
| Fixed Targets                                 | #                                                                                                                                                                                                                                                                                                                                    | Name                                                                                                                                                                                                                        |                    | Target Coordinates                                                                  |               | Targ. Coord. Corrections       |                            | Fluxes                              |                                                                         | Miscellaneous         |                              |  |
|                                               | (105)                                                                                                                                                                                                                                                                                                                                | PS1-H540181A                                                                                                                                                                                                                |                    | RA: 23 29 45.0400 (352.4376667d)<br>Dec: -01 25 17.00 (-1.42139d)<br>Equinox: J2000 |               |                                |                            | V=23                                |                                                                         | Reference Frame: ICRS |                              |  |
|                                               | Comments: 2013-H-540181                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |
| Exposures                                     | #                                                                                                                                                                                                                                                                                                                                    | Label                                                                                                                                                                                                                       | Target             | Config,Mode,Aperture                                                                | Spectral Els. | Opt. Params.                   | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |                       | Orbit                        |  |
|                                               | 1                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             | (105) PS1-H540181A | WFC3/IR, MULTIACCUM, IR-FIX                                                         | F125W         | SAMP-SEQ=SPARS 50;<br>NSAMP=13 | GS ACQ SCENARI<br>O SINGLE | Pattern 2, Exps 1-2 in Visit UA (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                       | [1]                          |  |
|                                               | 2                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             | (105) PS1-H540181A | WFC3/IR, MULTIACCUM, IR-FIX                                                         | F160W         | NSAMP=15;<br>SAMP-SEQ=SPARS50  |                            | Pattern 2, Exps 1-2 in Visit UA (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                       | [1]                          |  |
| Orbit Structure                               | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div>Unused Visibility = 4</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Occultation</div></div> <div></div> <div>05001000150020002500300035004000450050005500sec</div> |                                                                                                                                                                                                                             |                    |                                                                                     |               |                                |                            |                                     |                                                                         |                       |                              |  |

| Proposal 13046, Visit UB       |                                                                                                                                                                                                                                                                                               |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         | Tue Nov 26 02:16:18 GMT 2013 |           |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------|------------------------------|-----------|
| Visit                          | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SCHED 100%; ORIENT 228D TO 271 D; BETWEEN 25-AUG-2013:00:00:00 AND 28-AUG-2013:00:00:00; ON HOLD<br><i>Comments: single quide star acq is acceptable</i><br><i>On Hold Comments: too</i> |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         |                              |           |
|                                | Patterns                                                                                                                                                                                                                                                                                      | #            | Primary Pattern                                                                                                  |                             |                          |                               | Secondary Pattern                                                                                       |                                     |                                                                         |                              | Exposures |
|                                |                                                                                                                                                                                                                                                                                               | (2)          | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing= |                             |                          |                               | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                     |                                                                         |                              | (1-2)     |
|                                |                                                                                                                                                                                                                                                                                               |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         |                              |           |
| Fixed Targets                  | #                                                                                                                                                                                                                                                                                             | Name         | Target Coordinates                                                                                               |                             | Targ. Coord. Corrections |                               | Fluxes                                                                                                  |                                     | Miscellaneous                                                           |                              |           |
|                                | (106)                                                                                                                                                                                                                                                                                         | PS1-H540181B | RA: 23 29 39.2500 (352.4135417d)<br>Dec: -01 26 10.90 (-1.43636d)<br>Equinox: J2000                              |                             |                          |                               | V=23                                                                                                    |                                     | Reference Frame: ICRS                                                   |                              |           |
| <i>Comments: 2013-H-540181</i> |                                                                                                                                                                                                                                                                                               |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         |                              |           |
| Exposures                      | #                                                                                                                                                                                                                                                                                             | Label        | Target                                                                                                           | Config,Mode,Aperture        | Spectral Els.            | Opt. Params.                  | Special Reqs.                                                                                           | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |                              | Orbit     |
|                                | 1                                                                                                                                                                                                                                                                                             |              | (106) PS1-H540181B                                                                                               | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS50;<br>NSAMP=13 | GS ACQ SCENARIO SINGLE                                                                                  | Pattern 2, Exps 1-2 in Visit UB (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                              | [1]       |
|                                | 2                                                                                                                                                                                                                                                                                             |              | (106) PS1-H540181B                                                                                               | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                                                                                                         | Pattern 2, Exps 1-2 in Visit UB (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                              | [1]       |
|                                |                                                                                                                                                                                                                                                                                               |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         |                              |           |
| Orbit Structure                | <div> <div>Orbit 1</div> <div> </div> <div>           Server Version: 20131031<br/>           Unused Visibility = 4         </div> </div>                                                                                                                                                     |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         |                              |           |
|                                |                                                                                                                                                                                                                                                                                               |              |                                                                                                                  |                             |                          |                               |                                                                                                         |                                     |                                                                         |                              |           |

# Proposal 13046 - Visit UC - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                                               |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|--------------------------|--------------------------------|----------------------------|-------------------------------------|-------------------------------------------------------------------------|--|-----------|------------------------------|--------------------------|
| Visit                                         | Proposal 13046, Visit UC                                                                                               |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           | Tue Nov 26 02:16:18 GMT 2013 |                          |
|                                               | Diagnostic Status: No Diagnostics                                                                                      |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
|                                               | Scientific Instruments: WFC3/IR                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
|                                               | Special Requirements: SCHED 100%; ORIENT 228D TO 271 D; BETWEEN 25-AUG-2013:00:00:00 AND 28-AUG-2013:00:00:00; ON HOLD |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
| Comments: single quide star acq is acceptable |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
| On Hold Comments: too                         |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
| Patterns                                      | #                                                                                                                      | Primary Pattern                                                                                                                                                                                                             |                                                                                     |                             |                          |                                | Secondary Pattern          |                                     |                                                                         |  | Exposures |                              |                          |
|                                               | (2)                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing= |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  | (1-2)     |                              |                          |
| Fixed Targets                                 | #                                                                                                                      | Name                                                                                                                                                                                                                        | Target Coordinates                                                                  |                             | Targ. Coord. Corrections |                                | Fluxes                     |                                     | Miscellaneous                                                           |  |           |                              |                          |
|                                               | (107)                                                                                                                  | PS1-H540181C                                                                                                                                                                                                                | RA: 23 29 41.0000 (352.4208333d)<br>Dec: -01 24 55.30 (-1.41536d)<br>Equinox: J2000 |                             |                          |                                | V=23                       |                                     | Reference Frame: ICRS                                                   |  |           |                              |                          |
|                                               | Comments: 2013-H-540181                                                                                                |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
| Exposures                                     | #                                                                                                                      | Label                                                                                                                                                                                                                       | Target                                                                              | Config,Mode,Aperture        | Spectral Els.            | Opt. Params.                   | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |  | Orbit     |                              |                          |
|                                               | 1                                                                                                                      |                                                                                                                                                                                                                             | (107) PS1-H540181C                                                                  | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS 50;<br>NSAMP=13 | GS ACQ SCENARI<br>O SINGLE | Pattern 2, Exps 1-2 in Visit UC (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  | [1]       |                              |                          |
|                                               | 2                                                                                                                      |                                                                                                                                                                                                                             | (107) PS1-H540181C                                                                  | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50  |                            | Pattern 2, Exps 1-2 in Visit UC (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  | [1]       |                              |                          |
|                                               |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |
| Orbit Structure                               | Orbit 1                                                                                                                |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              | Server Version: 20131031 |
|                                               |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                                |                            |                                     |                                                                         |  |           |                              |                          |

Proposal 13046 - Visit UD - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:18 GMT 2013

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------|--------------------------|--------------------------------|-------------------------|-------------------------------------|-------------------------------------------------------------------------|-----------|------------------------------|
| Visit                                         | Proposal 13046, Visit UD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           | Tue Nov 26 02:16:18 GMT 2013 |
|                                               | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
|                                               | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
|                                               | Special Requirements: SCHED 100%; ORIENT 228D TO 271 D; BETWEEN 25-AUG-2013:00:00:00 AND 28-AUG-2013:00:00:00; ON HOLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
| Comments: single guide star acq is acceptable |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
| On Hold Comments: too                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
| Patterns                                      | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Primary Pattern                                                                                                                                                                                                             |                                                                                   |                             |                          | Secondary Pattern              |                         |                                     |                                                                         | Exposures |                              |
|                                               | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing= |                                                                                   |                             |                          |                                |                         |                                     |                                                                         | (1-2)     |                              |
| Fixed Targets                                 | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Name                                                                                                                                                                                                                        | Target Coordinates                                                                |                             | Targ. Coord. Corrections |                                | Fluxes                  |                                     | Miscellaneous                                                           |           |                              |
|                                               | (120)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PS1-J560027                                                                                                                                                                                                                 | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |                             |                          |                                | V=23                    |                                     | Reference Frame: ICRS                                                   |           |                              |
| Comments: 2013-J-560027                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
| Exposures                                     | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Label                                                                                                                                                                                                                       | Target                                                                            | Config,Mode,Aperture        | Spectral Els.            | Opt. Params.                   | Special Reqs.           | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         | Orbit     |                              |
|                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS 50;<br>NSAMP=13 | GS ACQ SCENARI O SINGLE | Pattern 2, Exps 1-2 in Visit UD (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] | [1]       |                              |
|                                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50  |                         | Pattern 2, Exps 1-2 in Visit UD (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] | [1]       |                              |
|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |
| Orbit Structure                               | Orbit 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           | Server Version: 20131031     |
|                                               | <p>The diagram illustrates the sequence of events during Orbit 1. The x-axis represents time in seconds from 0 to 5500. Key events include:<br/>- GS Acq at approximately 100 seconds.<br/>- Exp. 1 at approximately 200 seconds.<br/>- Exp. 2 at approximately 800 seconds.<br/>- Pointing Maneuver between 1500 and 2000 seconds.<br/>- Exp. 1 at approximately 1600 seconds.<br/>- Exp. 2 at approximately 2200 seconds.<br/>- Unused Visibility = 4 starting at approximately 3000 seconds.<br/>- Reconfig and Occultation occurring after 3000 seconds.<br/>A blue checkered bar highlights the period from approximately 200 seconds to 3000 seconds.</p> |                                                                                                                                                                                                                             |                                                                                   |                             |                          |                                |                         |                                     |                                                                         |           |                              |

# Proposal 13046 - Visit UJ - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|--------------------------|-------------------------------|------------------------|-------------------------------------|-------------------------------------------------------------------------|--|-------|------------------------------|--|
| Visit                 | Proposal 13046, Visit UJ                                                                                               |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       | Tue Nov 26 02:16:19 GMT 2013 |  |
|                       | Diagnostic Status: No Diagnostics                                                                                      |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
|                       | Scientific Instruments: WFC3/IR                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
|                       | Special Requirements: SCHED 100%; ORIENT 228D TO 265 D; BETWEEN 01-SEP-2013:00:00:00 AND 04-SEP-2013:00:00:00; ON HOLD |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
|                       | Comments: single quide star acq is acceptable                                                                          |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
| On Hold Comments: too |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
| Patterns              | #                                                                                                                      | Primary Pattern                                                                                                                                                                                                             |                                                                                     |                             |                          |                               | Secondary Pattern      |                                     |                                                                         |  |       | Exposures                    |  |
|                       | (2)                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       | (1-2)                        |  |
| Fixed Targets         | #                                                                                                                      | Name                                                                                                                                                                                                                        | Target Coordinates                                                                  |                             | Targ. Coord. Corrections |                               | Fluxes                 |                                     | Miscellaneous                                                           |  |       |                              |  |
|                       | (105)                                                                                                                  | PS1-H540181A                                                                                                                                                                                                                | RA: 23 29 45.0400 (352.4376667d)<br>Dec: -01 25 17.00 (-1.42139d)<br>Equinox: J2000 |                             |                          |                               | V=23                   |                                     | Reference Frame: ICRS                                                   |  |       |                              |  |
|                       | Comments: 2013-H-540181                                                                                                |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
| Exposures             | #                                                                                                                      | Label                                                                                                                                                                                                                       | Target                                                                              | Config,Mode,Aperture        | Spectral Els.            | Opt. Params.                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |  | Orbit |                              |  |
|                       | 1                                                                                                                      |                                                                                                                                                                                                                             | (105) PS1-H540181A                                                                  | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS50;<br>NSAMP=13 | GS ACQ SCENARIO SINGLE | Pattern 2, Exps 1-2 in Visit UJ (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  | [1]   |                              |  |
|                       | 2                                                                                                                      |                                                                                                                                                                                                                             | (105) PS1-H540181A                                                                  | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                        | Pattern 2, Exps 1-2 in Visit UJ (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  | [1]   |                              |  |
|                       |                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |
| Orbit Structure       | <div>Orbit 1<div>Server Version: 20131031</div><div>Unused Visibility = 4</div></div>                                  |                                                                                                                                                                                                                             |                                                                                     |                             |                          |                               |                        |                                     |                                                                         |  |       |                              |  |



# Proposal 13046 - Visit UK - RAISIN: Tracers of cosmic expansion with SN IA in the IR

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| Visit                 | Proposal 13046, Visit UK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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       |  |                               |  |                        | Tue Nov 26 02:16:19 GMT 2013 |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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|                       | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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|                       | Special Requirements: SCHED 100%; ORIENT 210D TO 265 D; BETWEEN 01-SEP-2013:00:00:00 AND 04-SEP-2013:00:00:00; ON HOLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |  |                               |  |                        |                              | Secondary Pattern                   |  |                                                                         |  |                       |  |       |  |  |  | Exposures |  |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                    |                                                                                     |  |        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| Fixed Targets         | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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       |  | Targ. Coord. Corrections      |  |                        |                              | Fluxes                              |  |                                                                         |  | Miscellaneous         |  |       |  |  |  |           |  |
|                       | (106)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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       |  |                               |  |                        |                              | V=23                                |  |                                                                         |  | Reference Frame: ICRS |  |       |  |  |  |           |  |
|                       | Comments: 2013-H-540181                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Exposures             | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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Spectral Els. |  | Opt. Params.                  |  | Special Reqs.          |                              | Groups                              |  | Exp. Time (Total)/[Actual Dur.]                                         |  |                       |  | Orbit |  |  |  |           |  |
|                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                             | (106) PS1-H540181B | WFC3/IR, MULTIACCUM, IR-FIX                                                         |  | F125W         |  | SAMP-SEQ=SPARS50;<br>NSAMP=13 |  | GS ACQ SCENARIO SINGLE |                              | Pattern 2, Exps 1-2 in Visit UK (2) |  | 602.937703 Secs (1205.875 Secs)<br>[>=>(Pattern 1)]<br>[>=>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
|                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                             | (106) PS1-H540181B | WFC3/IR, MULTIACCUM, IR-FIX                                                         |  | F160W         |  | NSAMP=15;<br>SAMP-SEQ=SPARS50 |  |                        |                              | Pattern 2, Exps 1-2 in Visit UK (2) |  | 702.938605 Secs (1405.877 Secs)<br>[>=>(Pattern 1)]<br>[>=>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
| Orbit Structure       | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div>Unused Visibility = 4</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Occultation</div></div> 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|                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                               |  |                        |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |

# Proposal 13046 - Visit UL - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:19 GMT 2013

|                       |                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|--|---------------|--|--------------------------------|--|-------------------------|------------------------------|-------------------------------------|--|-------------------------------------------------------------------------|--|-----------------------|--|-------|--|--|--|-----------|--|
| Visit                 | Proposal 13046, Visit UL                                                                                               |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         | Tue Nov 26 02:16:19 GMT 2013 |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Diagnostic Status: No Diagnostics                                                                                      |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Scientific Instruments: WFC3/IR                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Special Requirements: SCHED 100%; ORIENT 210D TO 265 D; BETWEEN 01-SEP-2013:00:00:00 AND 04-SEP-2013:00:00:00; ON HOLD |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Comments: single quide star acq is acceptable                                                                          |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| On Hold Comments: too |                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| Patterns              | #                                                                                                                      | Primary Pattern                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              | Secondary Pattern                   |  |                                                                         |  |                       |  |       |  |  |  | Exposures |  |
|                       | (2)                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  | (1-2)     |  |
| Fixed Targets         | #                                                                                                                      | Name                                                                                                                                                                                                                        |                    | Target Coordinates                                                                  |  |               |  | Targ. Coord. Corrections       |  |                         |                              | Fluxes                              |  |                                                                         |  | Miscellaneous         |  |       |  |  |  |           |  |
|                       | (107)                                                                                                                  | PS1-H540181C                                                                                                                                                                                                                |                    | RA: 23 29 41.0000 (352.4208333d)<br>Dec: -01 24 55.30 (-1.41536d)<br>Equinox: J2000 |  |               |  |                                |  |                         |                              | V=23                                |  |                                                                         |  | Reference Frame: ICRS |  |       |  |  |  |           |  |
|                       | Comments: 2013-H-540181                                                                                                |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| Exposures             | #                                                                                                                      | Label                                                                                                                                                                                                                       | Target             | Config,Mode,Aperture                                                                |  | Spectral Els. |  | Opt. Params.                   |  | Special Reqs.           |                              | Groups                              |  | Exp. Time (Total)/[Actual Dur.]                                         |  |                       |  | Orbit |  |  |  |           |  |
|                       | 1                                                                                                                      |                                                                                                                                                                                                                             | (107) PS1-H540181C | WFC3/IR, MULTIACCUM, IR-FIX                                                         |  | F125W         |  | SAMP-SEQ=SPARS 50;<br>NSAMP=13 |  | GS ACQ SCENARI O SINGLE |                              | Pattern 2, Exps 1-2 in Visit UL (2) |  | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
|                       | 2                                                                                                                      |                                                                                                                                                                                                                             | (107) PS1-H540181C | WFC3/IR, MULTIACCUM, IR-FIX                                                         |  | F160W         |  | NSAMP=15;<br>SAMP-SEQ=SPARS50  |  |                         |                              | Pattern 2, Exps 1-2 in Visit UL (2) |  | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
| Orbit Structure       | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div>Unused Visibility = 4</div> <div></div>                    |                                                                                                                                                                                                                             |                    |                                                                                     |  |               |  |                                |  |                         |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |

# Proposal 13046 - Visit UM - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------|--|---------------|--|--------------------------------|--|----------------------------|------------------------------|-------------------------------------|--|-------------------------------------------------------------------------|--|-----------------------|--|-------|--|--|--|-----------|--|
| Visit                 | Proposal 13046, Visit UM                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            | Tue Nov 26 02:16:20 GMT 2013 |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Special Requirements: SCHED 100%; ORIENT 210D TO 265 D; BETWEEN 01-SEP-2013:00:00:00 AND 04-SEP-2013:00:00:00; ON HOLD                                                                                                                                                                           |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Comments: single quide star acq is acceptable                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| On Hold Comments: too |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| Patterns              | #                                                                                                                                                                                                                                                                                                | Primary Pattern                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              | Secondary Pattern                   |  |                                                                         |  |                       |  |       |  |  |  | Exposures |  |
|                       | (2)                                                                                                                                                                                                                                                                                              | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  | (1-2)     |  |
| Fixed Targets         | #                                                                                                                                                                                                                                                                                                | Name                                                                                                                                                                                                                        |                   | Target Coordinates                                                                |  |               |  | Targ. Coord. Corrections       |  |                            |                              | Fluxes                              |  |                                                                         |  | Miscellaneous         |  |       |  |  |  |           |  |
|                       | (120)                                                                                                                                                                                                                                                                                            | PS1-J560027                                                                                                                                                                                                                 |                   | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |  |               |  |                                |  |                            |                              | V=23                                |  |                                                                         |  | Reference Frame: ICRS |  |       |  |  |  |           |  |
|                       | Comments: 2013-J-560027                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| Exposures             | #                                                                                                                                                                                                                                                                                                | Label                                                                                                                                                                                                                       | Target            | Config,Mode,Aperture                                                              |  | Spectral Els. |  | Opt. Params.                   |  | Special Reqs.              |                              | Groups                              |  | Exp. Time (Total)/[Actual Dur.]                                         |  |                       |  | Orbit |  |  |  |           |  |
|                       | 1                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             | (120) PS1-J560027 | WFC3/IR, MULTIACCUM, IR-FIX                                                       |  | F125W         |  | SAMP-SEQ=SPARS 50;<br>NSAMP=13 |  | GS ACQ SCENARI<br>O SINGLE |                              | Pattern 2, Exps 1-2 in Visit UM (2) |  | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
|                       | 2                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             | (120) PS1-J560027 | WFC3/IR, MULTIACCUM, IR-FIX                                                       |  | F160W         |  | NSAMP=15;<br>SAMP-SEQ=SPARS50  |  |                            |                              | Pattern 2, Exps 1-2 in Visit UM (2) |  | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
|                       |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| Orbit Structure       | <div>Orbit 1</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Occultation</div><div>Unused Visibility = 4</div></div> <div></div> <div>05001000150020002500300035004000450050005500 sec</div> |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Server Version: 20131031                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                   |  |               |  |                                |  |                            |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |

# Proposal 13046 - Visit UV - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:20 GMT 2013

|                                               |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|---------------|-------------------------------|------------------------|-------------------------------------|-------------------------------------------------------------------------|-----------------------|------------------------------|--|
| Visit                                         | Proposal 13046, Visit UV                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       | Tue Nov 26 02:16:20 GMT 2013 |  |
|                                               | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
|                                               | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
|                                               | Special Requirements: SCHED 100%; BETWEEN 08-SEP-2013:00:00:00 AND 11-SEP-2013:00:00:00; ON HOLD                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
| Comments: single quide star acq is acceptable |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
| On Hold Comments: too                         |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
| Patterns                                      | #                                                                                                                                                                                                                                                                                                                       | Primary Pattern                                                                                                                                                                                                             |                   |                                                                                     |               |                               | Secondary Pattern      |                                     |                                                                         |                       | Exposures                    |  |
|                                               | (2)                                                                                                                                                                                                                                                                                                                     | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing= |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       | (1-2)                        |  |
| Fixed Targets                                 | #                                                                                                                                                                                                                                                                                                                       | Name                                                                                                                                                                                                                        |                   | Target Coordinates                                                                  |               | Targ. Coord. Corrections      |                        | Fluxes                              |                                                                         | Miscellaneous         |                              |  |
|                                               | (104)                                                                                                                                                                                                                                                                                                                   | PS1-H540181                                                                                                                                                                                                                 |                   | RA: 23 29 42.5770 (352.4274042d)<br>Dec: -01 24 51.05 (-1.41418d)<br>Equinox: J2000 |               |                               |                        | V=23                                |                                                                         | Reference Frame: ICRS |                              |  |
|                                               | Comments: 2013-H-540181                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
| Exposures                                     | #                                                                                                                                                                                                                                                                                                                       | Label                                                                                                                                                                                                                       | Target            | Config,Mode,Aperture                                                                | Spectral Els. | Opt. Params.                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |                       | Orbit                        |  |
|                                               | 1                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                             | (104) PS1-H540181 | WFC3/IR, MULTIACCUM, IR-FIX                                                         | F125W         | SAMP-SEQ=SPARS50;<br>NSAMP=13 | GS ACQ SCENARIO SINGLE | Pattern 2, Exps 1-2 in Visit UV (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                       | [1]                          |  |
|                                               | 2                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                             | (104) PS1-H540181 | WFC3/IR, MULTIACCUM, IR-FIX                                                         | F160W         | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                        | Pattern 2, Exps 1-2 in Visit UV (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                       | [1]                          |  |
|                                               |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |
| Orbit Structure                               | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Unused Visibility = 4</div><div>Occultation</div><div>05001000150020002500300035004000450050005500 sec</div></div> |                                                                                                                                                                                                                             |                   |                                                                                     |               |                               |                        |                                     |                                                                         |                       |                              |  |

# Proposal 13046 - Visit UW - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:20 GMT 2013

|                 |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|---------------|
| Visit           | <b>Proposal 13046, Visit UW</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SCHED 100%; ORIENT 228D TO 240 D; BETWEEN 08-SEP-2013:00:00:00 AND 11-SEP-2013:00:00:00; ON HOLD<br>Comments: single quide star acq is acceptable<br>On Hold Comments: too |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Patterns        | #                                                                                                                                                                                                                                                                                                                  | Primary Pattern                                                                                                                                                                                                             |                                                                                     | Secondary Pattern           |               |
|                 | (2)                                                                                                                                                                                                                                                                                                                | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                                                                     |                             |               |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                                                  | Name                                                                                                                                                                                                                        | Target Coordinates                                                                  | Targ. Coord. Corrections    | Fluxes        |
|                 | (105)                                                                                                                                                                                                                                                                                                              | PS1-H540181A                                                                                                                                                                                                                | RA: 23 29 45.0400 (352.4376667d)<br>Dec: -01 25 17.00 (-1.42139d)<br>Equinox: J2000 |                             | V=23          |
| Exposures       | Miscellaneous                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | Reference Frame: ICRS                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | #                                                                                                                                                                                                                                                                                                                  | Label                                                                                                                                                                                                                       | Target                                                                              | Config,Mode,Aperture        | Spectral Els. |
|                 | 1                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             | (105) PS1-H540181A                                                                  | WFC3/IR, MULTIACCUM, IR-FIX | F125W         |
| Exposures       | Opt. Params.                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | SAMP-SEQ=SPARS 50; NSAMP=13                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Special Reqs.                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | GS ACQ SCENARI O SINGLE                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Groups                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | Pattern 2, Exps 1-2 i n Visit UW (2)                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Exp. Time (Total)/[Actual Dur.]                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | 602.937703 Secs (1205.875 Secs)                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Orbit                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | [1]                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | #                                                                                                                                                                                                                                                                                                                  | Label                                                                                                                                                                                                                       | Target                                                                              | Config,Mode,Aperture        | Spectral Els. |
|                 | 2                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             | (105) PS1-H540181A                                                                  | WFC3/IR, MULTIACCUM, IR-FIX | F160W         |
| Exposures       | Opt. Params.                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | NSAMP=15; SAMP-SEQ=SPAR S50                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Special Reqs.                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Groups                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | Pattern 2, Exps 1-2 i n Visit UW (2)                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Exp. Time (Total)/[Actual Dur.]                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | 702.938605 Secs (1405.877 Secs)                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Exposures       | Orbit                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | [1]                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             |                                                                                     |                             |               |
| Orbit Structure | <b>Orbit 1</b><br>                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                                                                                     |                             |               |
|                 | Server Version: 20131031<br>Unused Visibility = 4                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                                                                                     |                             |               |

# Proposal 13046 - Visit UX - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:21 GMT 2013

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| Visit                 | Proposal 13046, Visit UX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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   |  |                               |  |                        | Tue Nov 26 02:16:21 GMT 2013 |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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   |  |                               |  |                        |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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|                       | Special Requirements: SCHED 100%; ORIENT 190D TO 240 D; BETWEEN 08-SEP-2013:00:00:00 AND 11-SEP-2013:00:00:00; ON HOLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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   |  |                               |  |                        |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
|                       | Comments: single quide star acq is acceptable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| On Hold Comments: too |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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   |  |                               |  |                        |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  |           |  |
| Patterns              | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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   |  |                               |  |                        |                              | Secondary Pattern                   |  |                                                                         |  |                       |  |       |  |  |  | Exposures |  |
|                       | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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   |  |                               |  |                        |                              |                                     |  |                                                                         |  |                       |  |       |  |  |  | (1-2)     |  |
| Fixed Targets         | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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   |  | Targ. Coord. Corrections      |  |                        |                              | Fluxes                              |  |                                                                         |  | Miscellaneous         |  |       |  |  |  |           |  |
|                       | (106)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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   |  |                               |  |                        |                              | V=23                                |  |                                                                         |  | Reference Frame: ICRS |  |       |  |  |  |           |  |
|                       | Comments: 2013-H-540181                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Exposures             | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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Els. |  | Opt. Params.                  |  | Special Reqs.          |                              | Groups                              |  | Exp. Time (Total)/[Actual Dur.]                                         |  |                       |  | Orbit |  |  |  |           |  |
|                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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   |  | SAMP-SEQ=SPARS50;<br>NSAMP=13 |  | GS ACQ SCENARIO SINGLE |                              | Pattern 2, Exps 1-2 in Visit UX (2) |  | 602.937703 Secs (1205.875 Secs)<br>[>=>(Pattern 1)]<br>[>=>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
|                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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   |  | NSAMP=15;<br>SAMP-SEQ=SPARS50 |  |                        |                              | Pattern 2, Exps 1-2 in Visit UX (2) |  | 702.938605 Secs (1405.877 Secs)<br>[>=>(Pattern 1)]<br>[>=>(Pattern 2)] |  |                       |  | [1]   |  |  |  |           |  |
| Orbit Structure       | <div>Orbit 1<div>Server Version: 20131031</div><div>Unused Visibility = 4</div><div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Occultation</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><d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# Proposal 13046 - Visit UY - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:21 GMT 2013

|                                               |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|--|--------------------------|-------------------------------|------------------------|-------------------------------------|-------------------------------------------------------------------------|------------------------------|-------|
| Visit                                         | Proposal 13046, Visit UY                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         | Tue Nov 26 02:16:21 GMT 2013 |       |
|                                               | Diagnostic Status: No Diagnostics                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
|                                               | Scientific Instruments: WFC3/IR                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
|                                               | Special Requirements: SCHED 100%; ORIENT 190D TO 240 D; BETWEEN 08-SEP-2013:00:00:00 AND 11-SEP-2013:00:00:00; ON HOLD                                                                                                                                                                                                 |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
| Comments: single quide star acq is acceptable |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
| On Hold Comments: too                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
| Patterns                                      | #                                                                                                                                                                                                                                                                                                                      | Primary Pattern                                                                                                                                                                                                             |                    |                                                                                     |  |                          | Secondary Pattern             |                        |                                     |                                                                         | Exposures                    |       |
|                                               | (2)                                                                                                                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing= |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         | (1-2)                        |       |
| Fixed Targets                                 | #                                                                                                                                                                                                                                                                                                                      | Name                                                                                                                                                                                                                        |                    | Target Coordinates                                                                  |  | Targ. Coord. Corrections |                               | Fluxes                 |                                     | Miscellaneous                                                           |                              |       |
|                                               | (107)                                                                                                                                                                                                                                                                                                                  | PS1-H540181C                                                                                                                                                                                                                |                    | RA: 23 29 41.0000 (352.4208333d)<br>Dec: -01 24 55.30 (-1.41536d)<br>Equinox: J2000 |  |                          |                               | V=23                   |                                     | Reference Frame: ICRS                                                   |                              |       |
|                                               | Comments: 2013-H-540181                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
| Exposures                                     | #                                                                                                                                                                                                                                                                                                                      | Label                                                                                                                                                                                                                       | Target             | Config,Mode,Aperture                                                                |  | Spectral Els.            | Opt. Params.                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |                              | Orbit |
|                                               | 1                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             | (107) PS1-H540181C | WFC3/IR, MULTIACCUM, IR-FIX                                                         |  | F125W                    | SAMP-SEQ=SPARS50;<br>NSAMP=13 | GS ACQ SCENARIO SINGLE | Pattern 2, Exps 1-2 in Visit UY (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                              | [1]   |
|                                               | 2                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                             | (107) PS1-H540181C | WFC3/IR, MULTIACCUM, IR-FIX                                                         |  | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                        | Pattern 2, Exps 1-2 in Visit UY (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |                              | [1]   |
|                                               |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |
| Orbit Structure                               | <div>Orbit 1</div> <div>Server Version: 20131031</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Unused Visibility = 4</div><div>Occultation</div><div>05001000150020002500300035004000450050005500sec</div></div> |                                                                                                                                                                                                                             |                    |                                                                                     |  |                          |                               |                        |                                     |                                                                         |                              |       |

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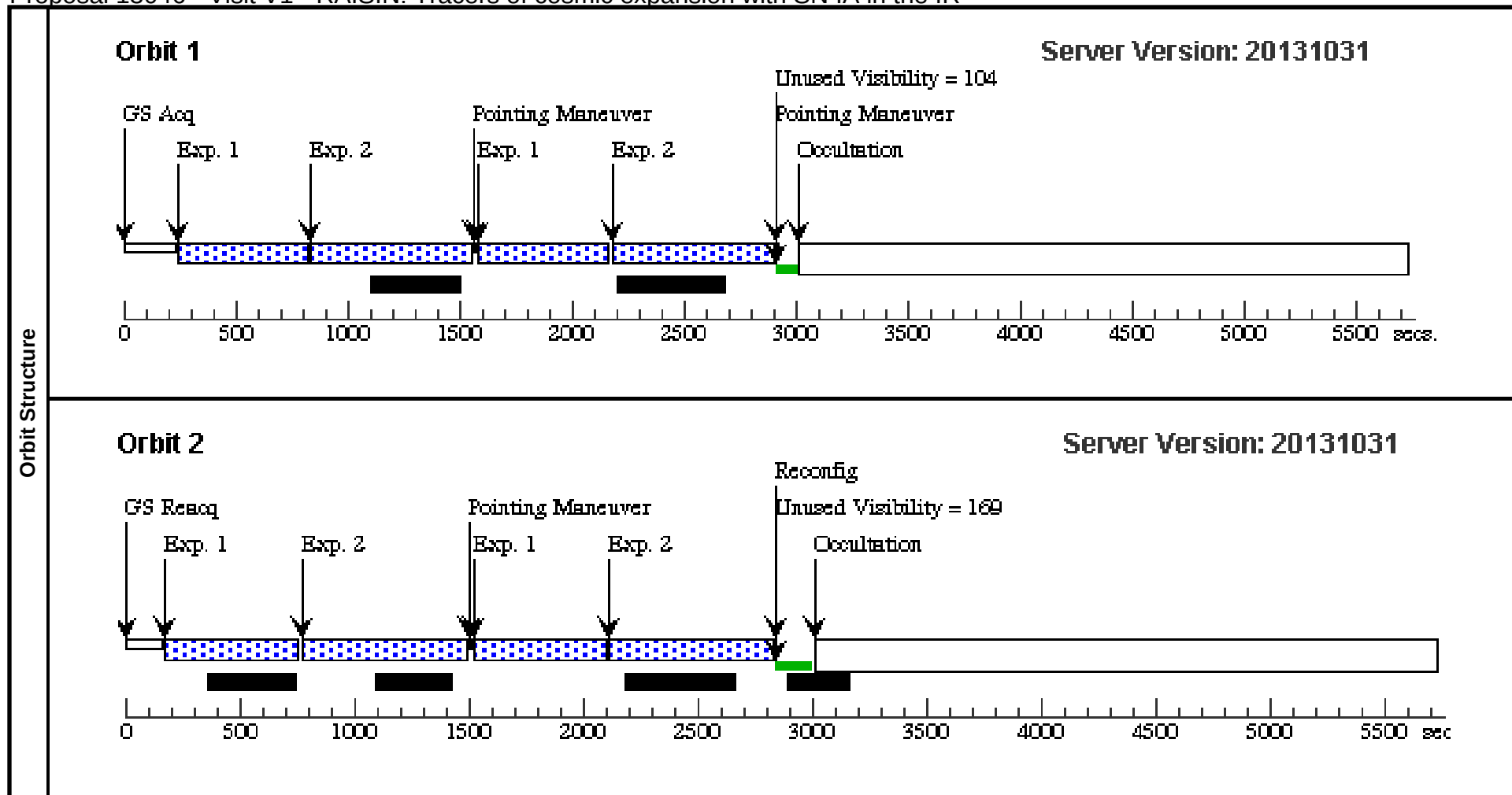
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| Proposal 13046 - Visit UZ - RAISIN: Tracers of cosmic expansion with SN IA in the IR |                              |
| Proposal 13046, Visit UZ                                                             | Tue Nov 26 02:16:21 GMT 2013 |

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|                       | Special Requirements: SCHED 100%; ORIENT 190D TO 240 D; BETWEEN 08-SEP-2013:00:00:00 AND 11-SEP-2013:00:00:00; ON HOLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing= |                                                                                   |                             |                          |                               |                            |                                     |                                                                         | (1-2)     |                              |
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Coord. Corrections |                               | Fluxes                     |                                     | Miscellaneous                                                           |           |                              |
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                                                                                                 | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |                             |                          |                               | V=23                       |                                     | Reference Frame: ICRS                                                   |           |                              |
|                       | Comments: 2013-J-560027                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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Params.                  | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                         |           | Orbit                        |
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                                                                                                 | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR-FIX | F125W                    | SAMP-SEQ=SPARS50;<br>NSAMP=13 | GS ACQ SCENARI<br>O SINGLE | Pattern 2, Exps 1-2 in Visit UZ (2) | 602.937703 Secs (1205.875 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |           | [1]                          |
|                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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                                                                                                 | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR-FIX | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                            | Pattern 2, Exps 1-2 in Visit UZ (2) | 702.938605 Secs (1405.877 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)] |           | [1]                          |
| Orbit Structure       | <div>Orbit 1<div>Server Version: 20131031</div></div> <div><div><div>GS Acq</div><div>Exp. 1</div><div>Exp. 2</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Reconfig</div><div>Unused Visibility = 4</div><div>Occultation</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div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|                                                                                                                                                                                                                             |                                                                                   |                             |                          |                               |                            |                                     |                                                                         |           |                              |



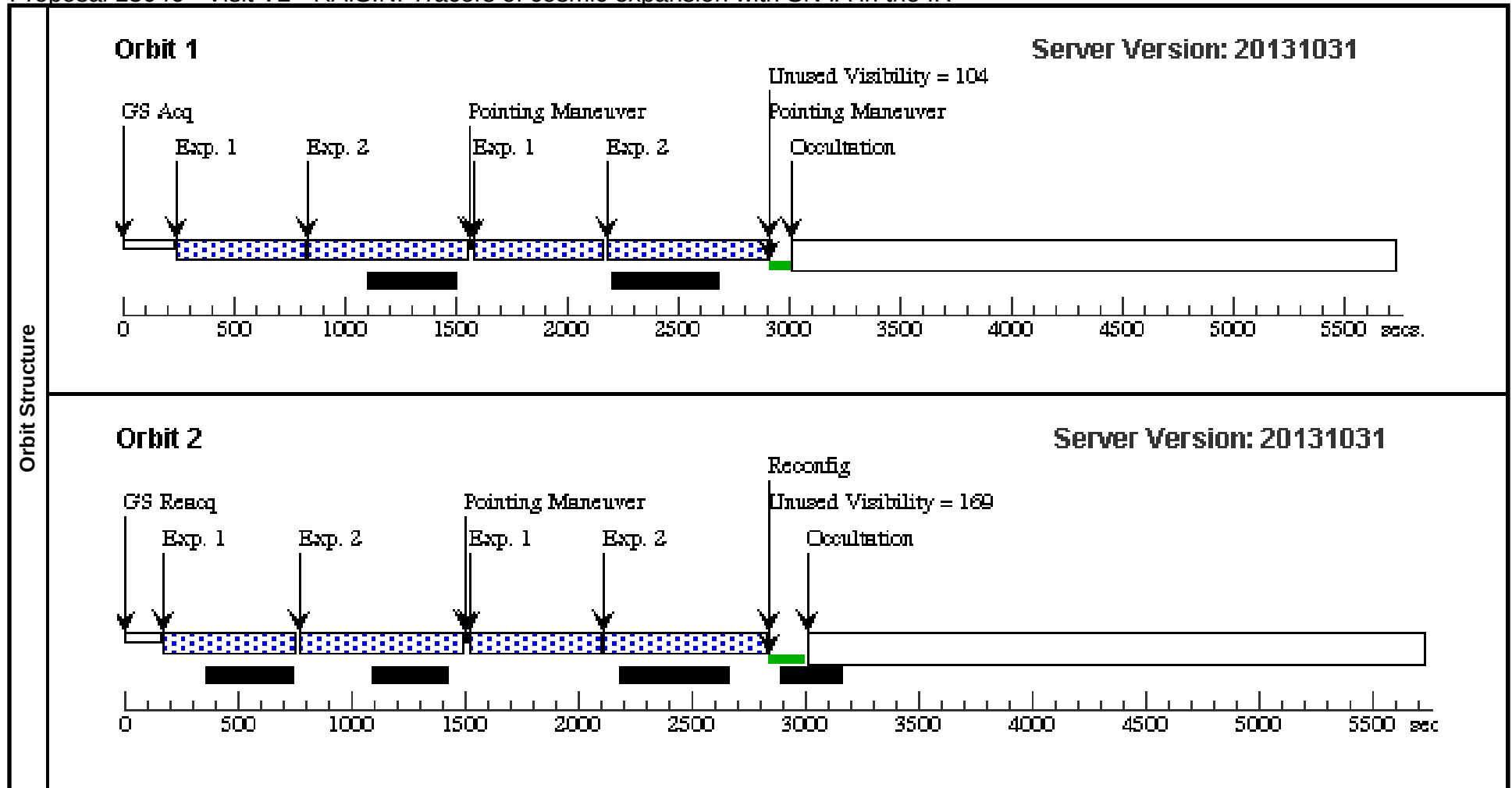
# Proposal 13046 - Visit V1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
|-------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|
| Visit                   | Proposal 13046, Visit V1                                                                         |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           | Tue Nov 26 02:16:21 GMT 2013 |  |
|                         | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
|                         | Special Requirements: SCHED 100%; BETWEEN 13-OCT-2013:00:00:00 AND 23-OCT-2013:00:00:00; ON HOLD |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
|                         | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
| On Hold Comments: too   |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
| Patterns                | #                                                                                                | Primary Pattern                                                                                                          |                                                                                   |                                                                                                               |                               | Secondary Pattern             |                        |                                     |                                 | Exposures |                              |  |
|                         | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                               |                               |                        |                                     |                                 | (1-2)     |                              |  |
| Fixed Targets           | #                                                                                                | Name                                                                                                                     | Target Coordinates                                                                |                                                                                                               | Targ. Coord. Corrections      |                               | Fluxes                 |                                     | Miscellaneous                   |           |                              |  |
|                         | (120)                                                                                            | PS1-J560027                                                                                                              | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |                                                                                                               |                               |                               | V=23                   |                                     | Reference Frame: ICRS           |           |                              |  |
| Comments: 2013-J-560027 |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     |                                 |           |                              |  |
| Exposures               | #                                                                                                | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture                                                                                          | Spectral Els.                 | Opt. Params.                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                         | 1                                                                                                |                                                                                                                          | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR                                                                                       | F125W                         | SAMP-SEQ=SPARS50;<br>NSAMP=12 | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit V1 (1) | 552.937252 Secs (2211.749 Secs) |           |                              |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 1)]                |           | [1]                          |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 3)]                |           | [2]                          |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 4)]                |           |                              |  |
| 2                       |                                                                                                  | (120) PS1-J560027                                                                                                        | WFC3/IR, MULTIACCUM, IR                                                           | F160W                                                                                                         | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                               |                        | Pattern 1, Exps 1-2 in Visit V1 (1) | 702.938605 Secs (2811.754 Secs) |           |                              |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 1)]                |           | [1]                          |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 3)]                |           | [2]                          |  |
|                         |                                                                                                  |                                                                                                                          |                                                                                   |                                                                                                               |                               |                               |                        |                                     | [==>(Pattern 4)]                |           |                              |  |



# Proposal 13046 - Visit V2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
|-------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|--|--------------------------|-------------------------------|------------------------|-------------------------------------|---------------------------------|------------------------------|-------|
| Visit                   | Proposal 13046, Visit V2                                          |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 | Tue Nov 26 02:16:22 GMT 2013 |       |
|                         | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
|                         | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
|                         | Special Requirements: SCHED 100%; AFTER V1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
|                         | Comments: single quide star acq is acceptable                     |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
| On Hold Comments: too   |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
| Patterns                | #                                                                 | Primary Pattern                                                                                                          |                   |                                                                                                               |  | Secondary Pattern        |                               |                        |                                     | Exposures                       |                              |       |
|                         | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |  |                          |                               |                        |                                     | (1-2)                           |                              |       |
| Fixed Targets           | #                                                                 | Name                                                                                                                     |                   | Target Coordinates                                                                                            |  | Targ. Coord. Corrections |                               | Fluxes                 |                                     | Miscellaneous                   |                              |       |
|                         | (120)                                                             | PS1-J560027                                                                                                              |                   | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000                             |  |                          |                               | V=23                   |                                     | Reference Frame: ICRS           |                              |       |
| Comments: 2013-J-560027 |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     |                                 |                              |       |
| Exposures               | #                                                                 | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                                                          |  | Spectral Els.            | Opt. Params.                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |
|                         | 1                                                                 |                                                                                                                          | (120) PS1-J560027 | WFC3/IR, MULTIACCUM, IR                                                                                       |  | F125W                    | SAMP-SEQ=SPARS50;<br>NSAMP=12 | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit V2 (1) | 552.937252 Secs (2211.749 Secs) |                              |       |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 1)]                |                              | [1]   |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 2)]                |                              |       |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 3)]                |                              | [2]   |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 4)]                |                              |       |
|                         | 2                                                                 |                                                                                                                          | (120) PS1-J560027 | WFC3/IR, MULTIACCUM, IR                                                                                       |  | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS50 |                        | Pattern 1, Exps 1-2 in Visit V2 (1) | 702.938605 Secs (2811.754 Secs) |                              |       |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 1)]                |                              | [1]   |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 2)]                |                              |       |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 3)]                |                              | [2]   |
|                         |                                                                   |                                                                                                                          |                   |                                                                                                               |  |                          |                               |                        |                                     | [==>(Pattern 4)]                |                              |       |



# Proposal 13046 - Visit V3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:23 GMT 2013

|                         |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|-------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                   | Proposal 13046, Visit V3                                            |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           | Tue Nov 26 02:16:23 GMT 2013 |                          |
|                         | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|                         | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|                         | Special Requirements: SCHED 100%; AFTER V1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
|                         | Comments: single guide star acq is acceptable                       |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
| On Hold Comments: too   |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
| Patterns                | #                                                                   | Primary Pattern                                                                                                          |                                                                                   |                         |                          | Secondary Pattern                                                                                             |                        |                                     |                                                                                                             | Exposures |                              |                          |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                        |                                     |                                                                                                             | (1)       |                              |                          |
| Fixed Targets           | #                                                                   | Name                                                                                                                     | Target Coordinates                                                                |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                 |                                     | Miscellaneous                                                                                               |           |                              |                          |
|                         | (120)                                                               | PS1-J560027                                                                                                              | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                   |                                     | Reference Frame: ICRS                                                                                       |           |                              |                          |
| Comments: 2013-J-560027 |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |
| Exposures               | #                                                                   | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                             |           | Orbit                        |                          |
|                         | 1                                                                   |                                                                                                                          | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPARS50                                                                                 | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-1 in Visit V3 (1) | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure         | Orbit 1                                                             |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              | Server Version: 20131031 |
|                         |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                        |                                     |                                                                                                             |           |                              |                          |

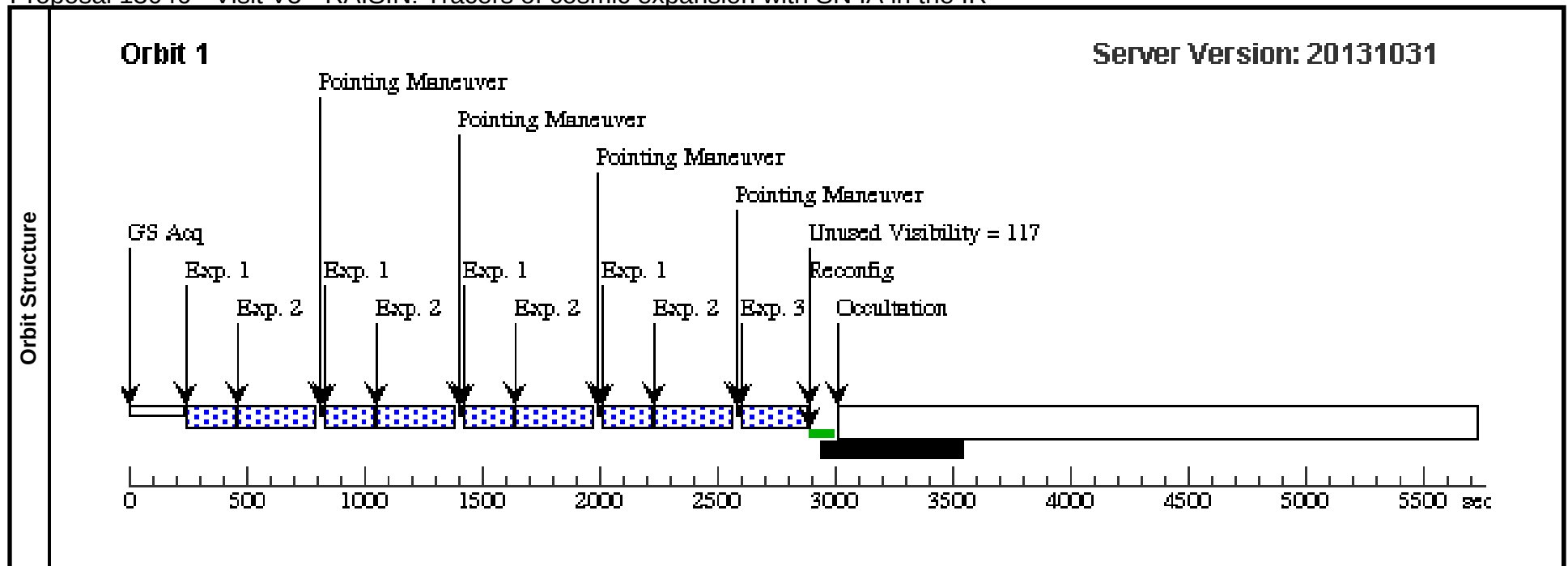
# Proposal 13046 - Visit V4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:23 GMT 2013

|                         |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
|-------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                   | Proposal 13046, Visit V4                                            |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           | Tue Nov 26 02:16:23 GMT 2013 |                          |
|                         | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
|                         | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
|                         | Special Requirements: SCHED 100%; AFTER V1 BY 23 D TO 30 D; ON HOLD |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
|                         | Comments: single quide star acq is acceptable                       |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
| On Hold Comments: too   |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
| Patterns                | #                                                                   | Primary Pattern                                                                                                          |                                                                                   |                         |                          | Secondary Pattern                                                                                             |                            |                                         |                                                                                                                 | Exposures |                              |                          |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                            |                                         |                                                                                                                 | (1)       |                              |                          |
| Fixed Targets           | #                                                                   | Name                                                                                                                     | Target Coordinates                                                                |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes                     |                                         | Miscellaneous                                                                                                   |           |                              |                          |
|                         | (120)                                                               | PS1-J560027                                                                                                              | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23                       |                                         | Reference Frame: ICRS                                                                                           |           |                              |                          |
| Comments: 2013-J-560027 |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |
| Exposures               | #                                                                   | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs.              | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                 |           | Orbit                        |                          |
|                         | 1                                                                   |                                                                                                                          | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             | GS ACQ SCENARI<br>O SINGLE | Pattern 1, Exps 1-1 i<br>n Visit V4 (1) | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure         | Orbit 1                                                             |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              | Server Version: 20131031 |
|                         |                                                                     |                                                                                                                          |                                                                                   |                         |                          |                                                                                                               |                            |                                         |                                                                                                                 |           |                              |                          |

# Proposal 13046 - Visit V5 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

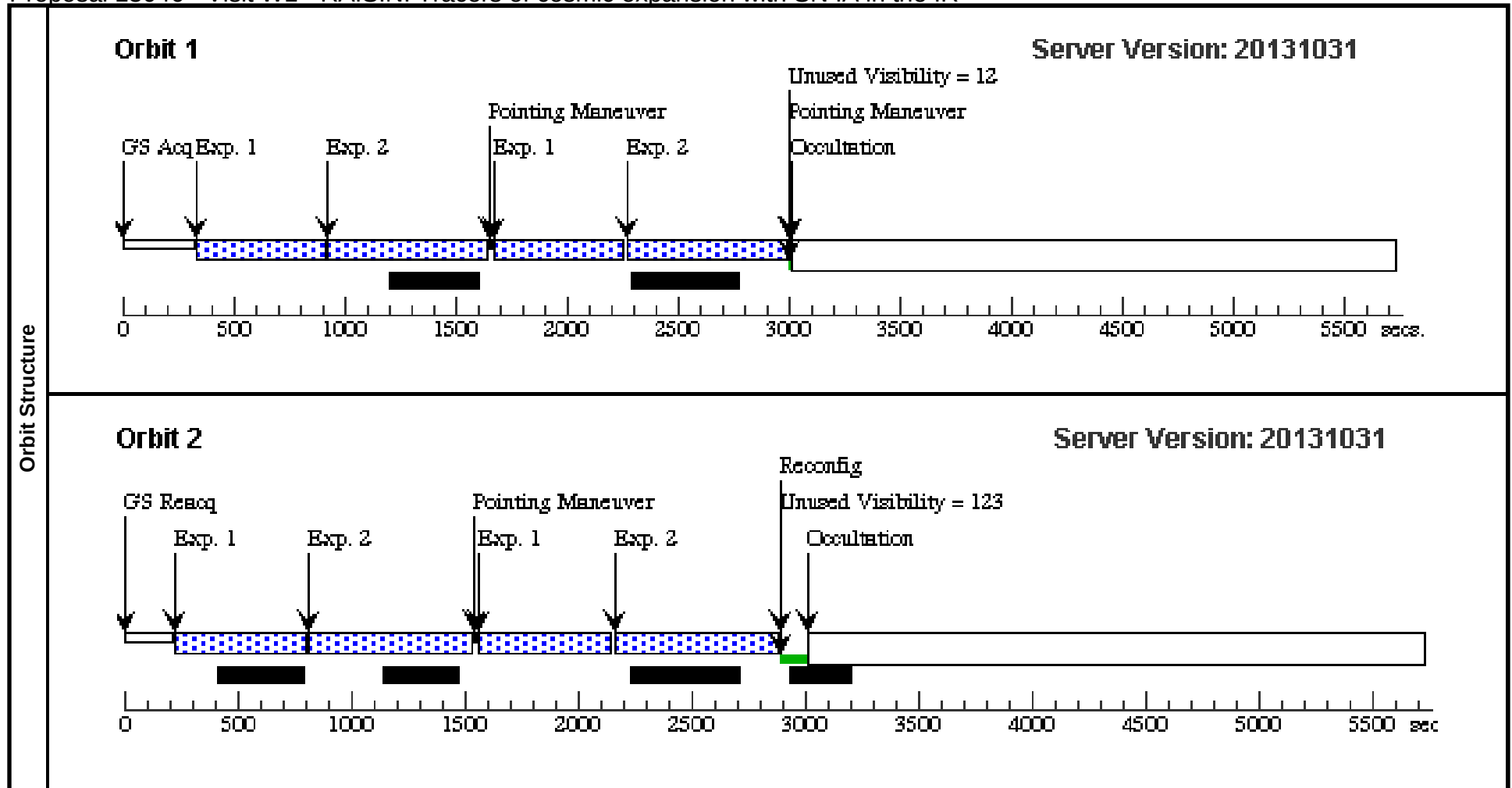
|                       |                                                                       |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|-----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|------------------------|-------------------------------------|------------------------------------------------------------------------------|-----------|------------------------------|
| Visit                 | Proposal 13046, Visit V5                                              |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           | Tue Nov 26 02:16:23 GMT 2013 |
|                       | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|                       | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|                       | Special Requirements: SCHED 100%; AFTER V1 BY 180 D TO 300 D; ON HOLD |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
|                       | Comments: single quide star acq is acceptable                         |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| On Hold Comments: too |                                                                       |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Patterns              | #                                                                     | Primary Pattern                                                                                                          |                                                                                   |                                                                                                               |                          | Secondary Pattern              |                        |                                     |                                                                              | Exposures |                              |
|                       | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                        |                                     |                                                                              | (1-2)     |                              |
| Fixed Targets         | #                                                                     | Name                                                                                                                     | Target Coordinates                                                                |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                 |                                     | Miscellaneous                                                                |           |                              |
|                       | (120)                                                                 | PS1-J560027                                                                                                              | RA: 02 23 24.1500 (35.8506250d)<br>Dec: -03 05 2.21 (-3.08395d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                   |                                     | Reference Frame: ICRS                                                        |           |                              |
|                       | Comments: 2013-J-560027                                               |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     |                                                                              |           |                              |
| Exposures             | #                                                                     | Label                                                                                                                    | Target                                                                            | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |           | Orbit                        |
|                       | 1                                                                     |                                                                                                                          | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit V5 (1) | 184.223035 Secs (736.892 Secs)                                               |           |                              |
|                       |                                                                       |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 2                                                                     |                                                                                                                          | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |                        | Pattern 1, Exps 1-2 in Visit V5 (1) | 321.750541 Secs (1287.002 Secs)                                              |           |                              |
|                       |                                                                       |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |           | [1]                          |
|                       | 3                                                                     |                                                                                                                          | (120) PS1-J560027                                                                 | WFC3/IR, MULTIACCUM, IRSUB512                                                                                 | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                        |                                     | 252.986788 Secs (252.987 Secs)                                               |           |                              |
|                       |                                                                       |                                                                                                                          |                                                                                   |                                                                                                               |                          |                                |                        |                                     | [==>]                                                                        |           | [1]                          |





# Proposal 13046 - Visit W1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

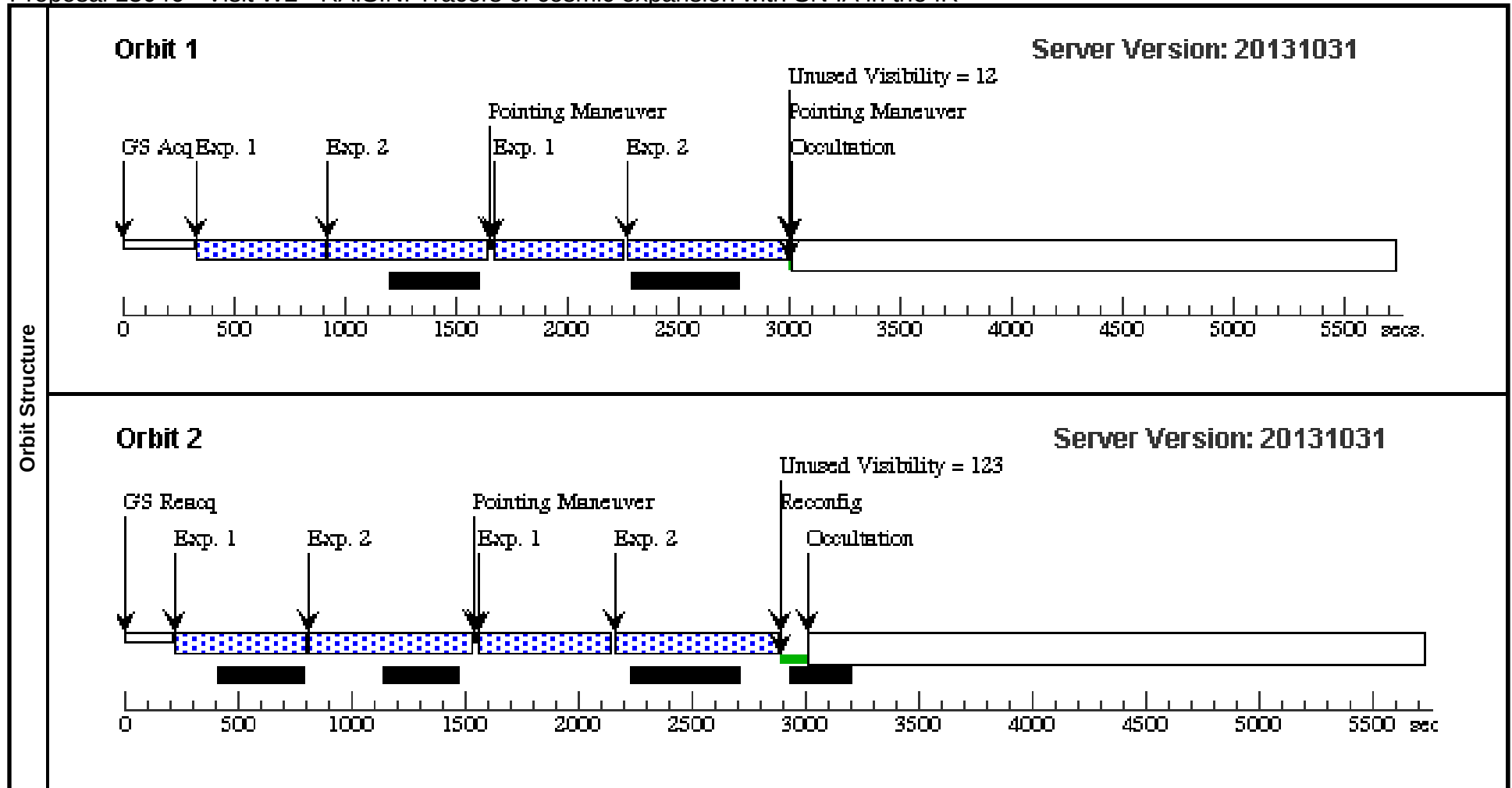
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------|-------------------------------------|---------------------------------|------------------------------|-----------|--|
| Visit                 | Proposal 13046, Visit W1                                                                         |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 | Tue Nov 26 02:16:24 GMT 2013 |           |  |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
|                       | Special Requirements: SCHED 100%; BETWEEN 13-OCT-2013:00:00:00 AND 23-OCT-2013:00:00:00; ON HOLD |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                   |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                 |                              | Exposures |  |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                 |                              | (1-2)     |  |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     |                   | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                |               | Fluxes                              |                                 | Miscellaneous                |           |  |
|                       | (121)                                                                                            | PS1-J550202                                                                                                              |                   | RA: 23 27 11.9730 (351.7998875d)<br>Dec: -00 46 58.54 (-.78293d)<br>Equinox: J2000 |                                                                                                               |                          |                                |               | V=23                                |                                 | Reference Frame: ICRS        |           |  |
|                       | Comments: 2013-J-550202                                                                          |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |                              |           |  |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |                              | Orbit     |  |
|                       | 1                                                                                                |                                                                                                                          | (121) PS1-J550202 | WFC3/IR, MULTIACCUM, IR                                                            |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 50;<br>NSAMP=12 |               | Pattern 1, Exps 1-2 in Visit W1 (1) | 552.937252 Secs (2211.749 Secs) |                              |           |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]                |                              | [1]       |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 2)]                |                              |           |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 3)]                |                              | [2]       |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 4)]                |                              |           |  |
|                       | 2                                                                                                |                                                                                                                          | (121) PS1-J550202 | WFC3/IR, MULTIACCUM, IR                                                            |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S50 |               | Pattern 1, Exps 1-2 in Visit W1 (1) | 702.938605 Secs (2811.754 Secs) |                              |           |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]                |                              | [1]       |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 2)]                |                              |           |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 3)]                |                              | [2]       |  |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 4)]                |                              |           |  |



# Proposal 13046 - Visit W2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:24 GMT 2013

|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
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| Visit                   | Proposal 13046, Visit W2                                          |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           | Tue Nov 26 02:16:24 GMT 2013 |  |
|                         | Diagnostic Status: No Diagnostics                                 |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
|                         | Special Requirements: SCHED 100%; AFTER W1 BY 5 D TO 7 D; ON HOLD |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
|                         | Comments: single quide star acq is acceptable                     |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
| On Hold Comments: too   |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
| Patterns                | #                                                                 | Primary Pattern                                                                                                          |                                                                                    |                                                                                                               |                          | Secondary Pattern              |               |                                     |                                 | Exposures |                              |  |
|                         | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |               |                                     |                                 | (1-2)     |                              |  |
| Fixed Targets           | #                                                                 | Name                                                                                                                     | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes        |                                     | Miscellaneous                   |           |                              |  |
|                         | (121)                                                             | PS1-J550202                                                                                                              | RA: 23 27 11.9730 (351.7998875d)<br>Dec: -00 46 58.54 (-.78293d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23          |                                     | Reference Frame: ICRS           |           |                              |  |
| Comments: 2013-J-550202 |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     |                                 |           |                              |  |
| Exposures               | #                                                                 | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture                                                                                          | Spectral Els.            | Opt. Params.                   | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                         | 1                                                                 |                                                                                                                          | (121) PS1-J550202                                                                  | WFC3/IR, MULTIACCUM, IR                                                                                       | F125W                    | SAMP-SEQ=SPARS 50;<br>NSAMP=12 |               | Pattern 1, Exps 1-2 in Visit W2 (1) | 552.937252 Secs (2211.749 Secs) |           |                              |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 1)]                |           | [1]                          |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 3)]                |           | [2]                          |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               |                                     | [==>(Pattern 4)]                |           |                              |  |
|                         | 2                                                                 |                                                                                                                          | (121) PS1-J550202                                                                  | WFC3/IR, MULTIACCUM, IR                                                                                       | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S50 |               | Pattern 1, Exps 1-2 in Visit W2 (1) | 702.938605 Secs (2811.754 Secs) |           |                              |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               | [==>(Pattern 1)]                    |                                 | [1]       |                              |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               | [==>(Pattern 2)]                    |                                 |           |                              |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               | [==>(Pattern 3)]                    |                                 | [2]       |                              |  |
|                         |                                                                   |                                                                                                                          |                                                                                    |                                                                                                               |                          |                                |               | [==>(Pattern 4)]                    |                                 |           |                              |  |



# Proposal 13046 - Visit W3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:25 GMT 2013

|                         |                                                                     |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
|-------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|--|--|--|--------------------------|--|-----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------|--|-----------------------------------------|--|-----------------------------------------------------------------------------------------------------------------|--|--|--|-------|--|-----------|--|
| Visit                   | Proposal 13046, Visit W3                                            |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   | Tue Nov 26 02:16:25 GMT 2013 |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
|                         | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
|                         | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
|                         | Special Requirements: SCHED 100%; AFTER W1 BY 13 D TO 16 D; ON HOLD |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
|                         | Comments: single quide star acq is acceptable                       |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
| On Hold Comments: too   |                                                                     |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
| Patterns                | #                                                                   | Primary Pattern                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              | Secondary Pattern                                                                                             |  |                                         |  |                                                                                                                 |  |  |  |       |  | Exposures |  |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                    |  |  |  |                          |  |                                   |                              | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |  |                                         |  |                                                                                                                 |  |  |  |       |  | (1)       |  |
| Fixed Targets           | #                                                                   | Name                                                                                                                     |                   | Target Coordinates                                                                 |  |  |  | Targ. Coord. Corrections |  |                                   |                              | Fluxes                                                                                                        |  |                                         |  | Miscellaneous                                                                                                   |  |  |  |       |  |           |  |
|                         | (121)                                                               | PS1-J550202                                                                                                              |                   | RA: 23 27 11.9730 (351.7998875d)<br>Dec: -00 46 58.54 (-.78293d)<br>Equinox: J2000 |  |  |  |                          |  |                                   |                              | V=23                                                                                                          |  |                                         |  | Reference Frame: ICRS                                                                                           |  |  |  |       |  |           |  |
| Comments: 2013-J-550202 |                                                                     |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
| Exposures               | #                                                                   | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                               |  |  |  | Spectral Els.            |  | Opt. Params.                      |                              | Special Reqs.                                                                                                 |  | Groups                                  |  | Exp. Time (Total)/[Actual Dur.]                                                                                 |  |  |  | Orbit |  |           |  |
|                         | 1                                                                   |                                                                                                                          | (121) PS1-J550202 | WFC3/IR, MULTIACCUM, IR                                                            |  |  |  | F160W                    |  | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50 |                              |                                                                                                               |  | Pattern 1, Exps 1-1 i<br>n Visit W3 (1) |  | 602.937703 Secs (2411.751 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |  |  |  | [1]   |  |           |  |
| Orbit Structure         | <div>Orbit 1</div> <div>Server Version: 20131031</div>              |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |
|                         | <div>05001000150020002500300035004000450050005500 sec</div>         |                                                                                                                          |                   |                                                                                    |  |  |  |                          |  |                                   |                              |                                                                                                               |  |                                         |  |                                                                                                                 |  |  |  |       |  |           |  |

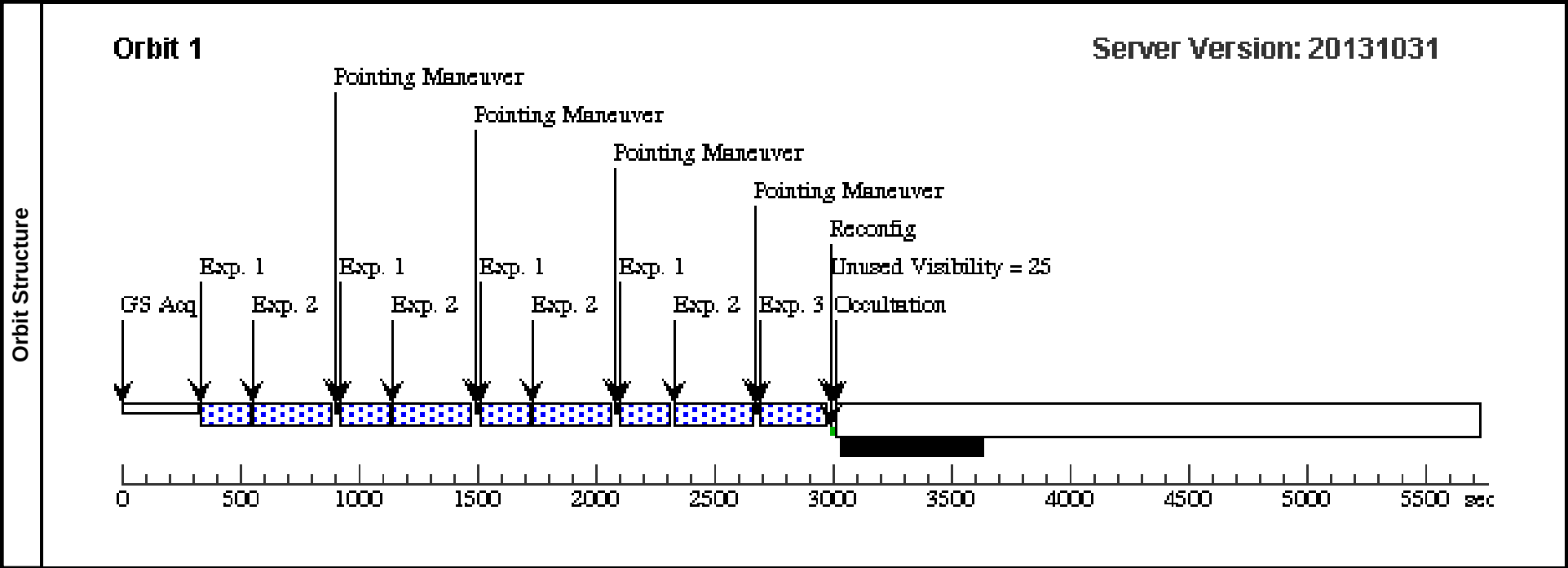
# Proposal 13046 - Visit W4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

Tue Nov 26 02:16:25 GMT 2013

|                         |                                                                     |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|-------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------|------------------------------|--------------------------|
| Visit                   | Proposal 13046, Visit W4                                            |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           | Tue Nov 26 02:16:25 GMT 2013 |                          |
|                         | Diagnostic Status: No Diagnostics                                   |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|                         | Scientific Instruments: WFC3/IR                                     |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|                         | Special Requirements: SCHED 100%; AFTER W1 BY 23 D TO 30 D; ON HOLD |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
|                         | Comments: single quide star acq is acceptable                       |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| On Hold Comments: too   |                                                                     |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| Patterns                | #                                                                   | Primary Pattern                                                                                                          |                                                                                    |                         |                          | Secondary Pattern                                                                                             |               |                                     |                                                                                                             | Exposures |                              |                          |
|                         | (1)                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                    |                         |                          | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |               |                                     |                                                                                                             | (1)       |                              |                          |
| Fixed Targets           | #                                                                   | Name                                                                                                                     | Target Coordinates                                                                 |                         | Targ. Coord. Corrections |                                                                                                               | Fluxes        |                                     | Miscellaneous                                                                                               |           |                              |                          |
|                         | (121)                                                               | PS1-J550202                                                                                                              | RA: 23 27 11.9730 (351.7998875d)<br>Dec: -00 46 58.54 (-.78293d)<br>Equinox: J2000 |                         |                          |                                                                                                               | V=23          |                                     | Reference Frame: ICRS                                                                                       |           |                              |                          |
| Comments: 2013-J-550202 |                                                                     |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |
| Exposures               | #                                                                   | Label                                                                                                                    | Target                                                                             | Config,Mode,Aperture    | Spectral Els.            | Opt. Params.                                                                                                  | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                             |           | Orbit                        |                          |
|                         | 1                                                                   |                                                                                                                          | (121) PS1-J550202                                                                  | WFC3/IR, MULTIACCUM, IR | F160W                    | NSAMP=13;<br>SAMP-SEQ=SPAR<br>S50                                                                             |               | Pattern 1, Exps 1-1 in Visit W4 (1) | 602.937703 Secs (2411.751 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] |           | [1]                          |                          |
| Orbit Structure         | Orbit 1                                                             |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              | Server Version: 20131031 |
|                         |                                                                     |                                                                                                                          |                                                                                    |                         |                          |                                                                                                               |               |                                     |                                                                                                             |           |                              |                          |

# Proposal 13046 - Visit W5 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

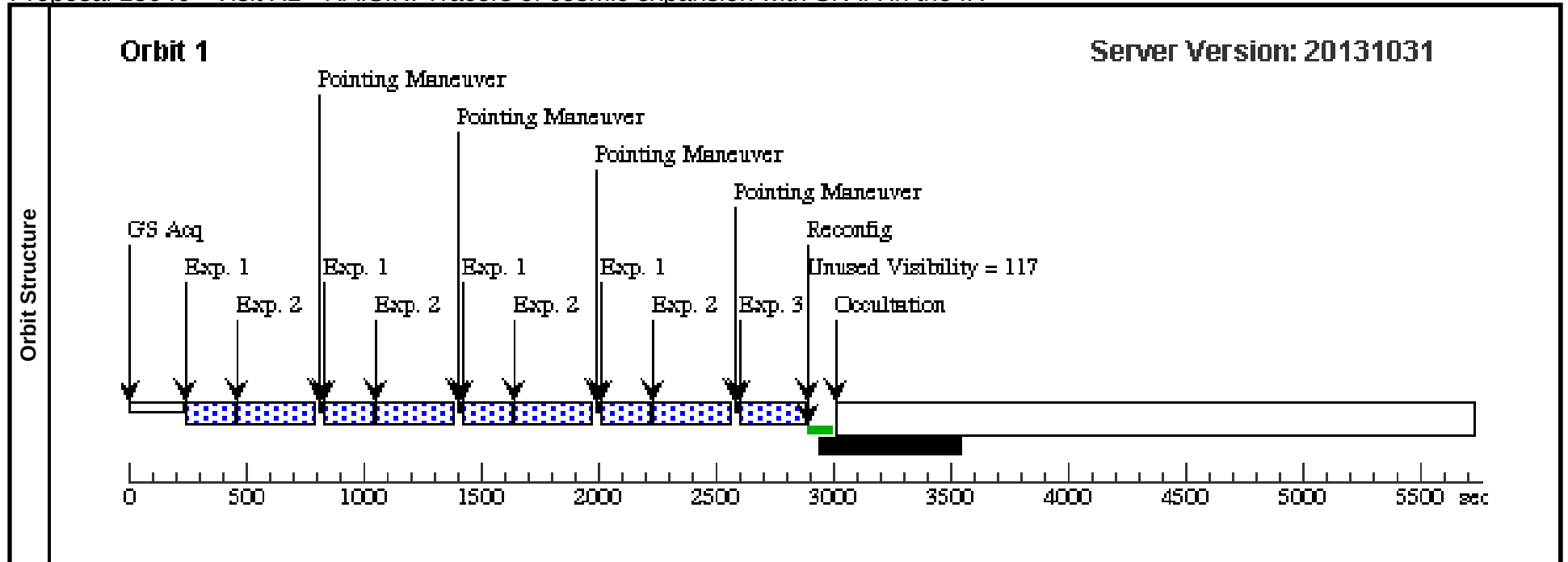
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
|-------------------------|-----------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|---------------|-------------------------------------|---------------------------------|-----------|------------------------------|-----|--|
| Visit                   | Proposal 13046, Visit W5                                              |                                     |                                  |                               |                          |                    |               |                                     |                                 |           | Tue Nov 26 02:16:25 GMT 2013 |     |  |
|                         | Diagnostic Status: No Diagnostics                                     |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
|                         | Scientific Instruments: WFC3/IR                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
|                         | Special Requirements: SCHED 100%; AFTER W1 BY 120 D TO 300 D; ON HOLD |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
|                         | Comments: single quide star acq is acceptable                         |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| On Hold Comments: too   |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Patterns                | #                                                                     | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |               |                                     |                                 | Exposures |                              |     |  |
|                         | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |               |                                     |                                 | (1-2)     |                              |     |  |
| Purpose=DITHER          |                                                                       | Pattern Orientation=18.528          |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Number Of Points=4      |                                                                       | Angle Between Sides=74.653          |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Point Spacing=0.572     |                                                                       | Center Pattern=false                |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Line Spacing=0.365      |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Fixed Targets           | #                                                                     | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes        |                                     | Miscellaneous                   |           |                              |     |  |
|                         | (121)                                                                 | PS1-J550202                         | RA: 23 27 11.9730 (351.7998875d) |                               |                          |                    | V=23          |                                     | Reference Frame: ICRS           |           |                              |     |  |
|                         | Dec: -00 46 58.54 (-.78293d)                                          |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Equinox: J2000          |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Comments: 2013-J-550202 |                                                                       |                                     |                                  |                               |                          |                    |               |                                     |                                 |           |                              |     |  |
| Exposures               | #                                                                     | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs. | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |     |  |
|                         | 1                                                                     |                                     | (121) PS1-J550202                | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | NSAMP=9       | Pattern 1, Exps 1-2 in Visit W5 (1) | 184.223035 Secs (736.892 Secs)  |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 1)]                |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 2)]                |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 3)]                |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                    |                                 | [1]       |                              |     |  |
| 2                       |                                                                       | (121) PS1-J550202                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPAR S25  |               | Pattern 1, Exps 1-2 in Visit W5 (1) | 321.750541 Secs (1287.002 Secs) |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 1)]                |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 2)]                |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>(Pattern 3)]                |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               | [==>(Pattern 4)]                    |                                 | [1]       |                              |     |  |
| 3                       |                                                                       | (121) PS1-J550202                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       | NSAMP=12           |               |                                     | 252.986788 Secs (252.987 Secs)  |           |                              |     |  |
|                         |                                                                       |                                     |                                  |                               |                          |                    |               |                                     | [==>]                           |           |                              | [1] |  |





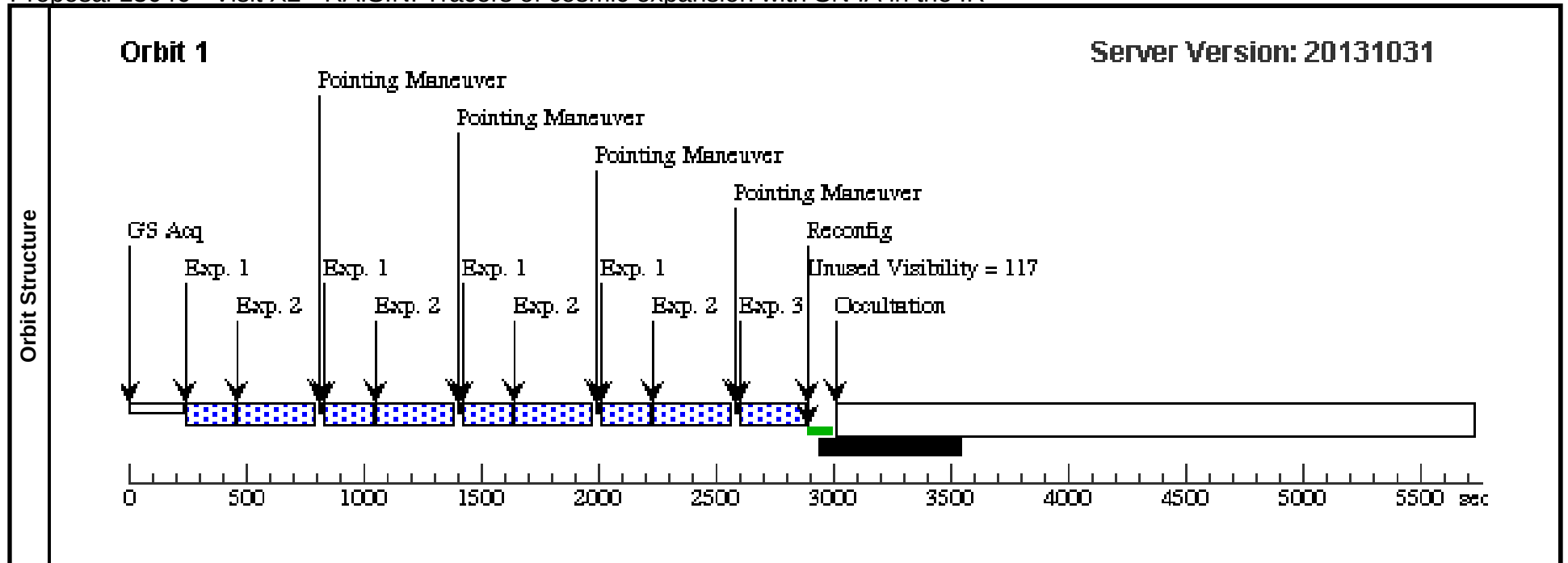
# Proposal 13046 - Visit X1 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|-------------------------|--------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit X1                                                                         |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              | Tue Nov 26 02:16:26 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                                                |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; BETWEEN 13-OCT-2013:00:00:00 AND 23-OCT-2013:00:00:00; ON HOLD |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                                                    |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
| On Hold Comments: too |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
| Patterns              | #                                                                                                | Primary Pattern                                                                                                          |                   |                                                                                    |                                                                                                               |                          | Secondary Pattern              |                         |                                      |                                                                              | Exposures                    |       |
|                       | (1)                                                                                              | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                         |                                      |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                                                | Name                                                                                                                     |                   | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                  |                                      | Miscellaneous                                                                |                              |       |
|                       | (122)                                                                                            | PS1-J560054                                                                                                              |                   | RA: 23 33 10.9930 (353.2958042d)<br>Dec: -00 20 11.07 (-.33641d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                    |                                      | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-J-560054                                                                          |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      |                                                                              |                              |       |
| Exposures             | #                                                                                                | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs.           | Groups                               | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                                                |                                                                                                                          | (122) PS1-J560054 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARI O SINGLE | Pattern 1, Exps 1-2 i n Visit X1 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                                                |                                                                                                                          | (122) PS1-J560054 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPAR S25 |                         | Pattern 1, Exps 1-2 i n Visit X1 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                                                |                                                                                                                          | (122) PS1-J560054 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                         |                                      | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                                                  |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                      | [==>]                                                                        |                              | [1]   |



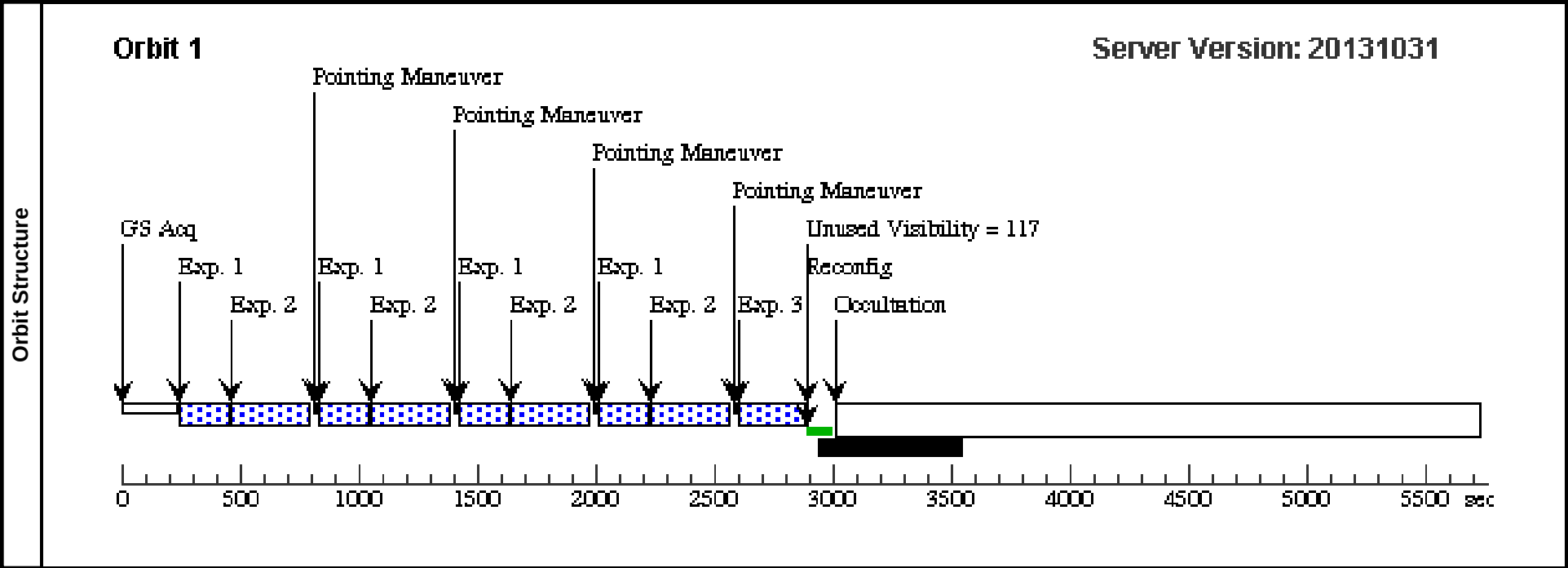
# Proposal 13046 - Visit X2 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
|-------------------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|------------------------------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------|-----------|------------------------------|--|
| Visit                   | Proposal 13046, Visit X2                                          |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           | Tue Nov 26 02:16:26 GMT 2013 |  |
|                         | Diagnostic Status: No Diagnostics                                 |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
|                         | Special Requirements: SCHED 100%; AFTER X1 BY 5 D TO 7 D; ON HOLD |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
|                         | Comments: single quide star acq is acceptable                     |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| On Hold Comments: too   |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Patterns                | #                                                                 | Primary Pattern                     |                                  |                               |                                    | Secondary Pattern                 |                                      |                                      |                                 | Exposures |                              |  |
|                         | (1)                                                               | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                                    |                                   |                                      |                                      |                                 | (1-2)     |                              |  |
| Purpose=DITHER          |                                                                   | Pattern Orientation=18.528          |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Number Of Points=4      |                                                                   | Angle Between Sides=74.653          |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Point Spacing=0.572     |                                                                   | Center Pattern=false                |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Line Spacing=0.365      |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Fixed Targets           | #                                                                 | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections           |                                   | Fluxes                               |                                      | Miscellaneous                   |           |                              |  |
|                         | (122)                                                             | PS1-J560054                         | RA: 23 33 10.9930 (353.2958042d) |                               |                                    |                                   | V=23                                 |                                      | Reference Frame: ICRS           |           |                              |  |
|                         | Dec: -00 20 11.07 (-.33641d)                                      |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Equinox: J2000          |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Comments: 2013-J-560054 |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      |                                 |           |                              |  |
| Exposures               | #                                                                 | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.                      | Opt. Params.                      | Special Reqs.                        | Groups                               | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                         | 1                                                                 |                                     | (122) PS1-J560054                | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                              | SAMP-SEQ=SPARS 25;<br><br>NSAMP=9 | GS ACQ SCENARI O SINGLE              | Pattern 1, Exps 1-2 i n Visit X2 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      | [==>(Pattern 1)]                |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      | [==>(Pattern 3)]                |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      |                                      | [==>(Pattern 4)]                |           |                              |  |
| 2                       |                                                                   | (122) PS1-J560054                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;<br>SAMP-SEQ=SPAR S25     |                                   | Pattern 1, Exps 1-2 i n Visit X2 (1) | 321.750541 Secs (1287.002 Secs)      |                                 | [1]       |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      | [==>(Pattern 1)]                     |                                 |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      | [==>(Pattern 2)]                     |                                 |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      | [==>(Pattern 3)]                     |                                 |           |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      | [==>(Pattern 4)]                     |                                 |           |                              |  |
| 3                       |                                                                   | (122) PS1-J560054                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;<br><br>NSAMP=12 |                                   |                                      | 252.986788 Secs (252.987 Secs)       |                                 | [1]       |                              |  |
|                         |                                                                   |                                     |                                  |                               |                                    |                                   |                                      | [==>]                                |                                 |           |                              |  |



# Proposal 13046 - Visit X3 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                         |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
|-------------------------|----------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------|--------------------------|--------------------|------------------------|-------------------------------------|---------------------------------|-----------|------------------------------|--|
| Visit                   | Proposal 13046, Visit X3                                             |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           | Tue Nov 26 02:16:26 GMT 2013 |  |
|                         | Diagnostic Status: No Diagnostics                                    |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
|                         | Scientific Instruments: WFC3/IR                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
|                         | Special Requirements: SCHED 100%; AFTER X1 BY 13 D TO 385 H; ON HOLD |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
|                         | Comments: single quide star acq is acceptable                        |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| On Hold Comments: too   |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Patterns                | #                                                                    | Primary Pattern                     |                                  |                               |                          | Secondary Pattern  |                        |                                     |                                 | Exposures |                              |  |
|                         | (1)                                                                  | Pattern Type=WFC3-IR-DITHER-BOX-MIN |                                  | Coordinate Frame=POS-TARG     |                          |                    |                        |                                     |                                 | (1-2)     |                              |  |
| Purpose=DITHER          |                                                                      | Pattern Orientation=18.528          |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Number Of Points=4      |                                                                      | Angle Between Sides=74.653          |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Point Spacing=0.572     |                                                                      | Center Pattern=false                |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Line Spacing=0.365      |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Fixed Targets           | #                                                                    | Name                                | Target Coordinates               |                               | Targ. Coord. Corrections |                    | Fluxes                 |                                     | Miscellaneous                   |           |                              |  |
|                         | (122)                                                                | PS1-J560054                         | RA: 23 33 10.9930 (353.2958042d) |                               |                          |                    | V=23                   |                                     | Reference Frame: ICRS           |           |                              |  |
|                         | Dec: -00 20 11.07 (-.33641d)                                         |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Equinox: J2000          |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Comments: 2013-J-560054 |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |
| Exposures               | #                                                                    | Label                               | Target                           | Config,Mode,Aperture          | Spectral Els.            | Opt. Params.       | Special Reqs.          | Groups                              | Exp. Time (Total)/[Actual Dur.] |           | Orbit                        |  |
|                         | 1                                                                    |                                     | (122) PS1-J560054                | WFC3/IR, MULTIACCUM, IRSUB512 | F125W                    | SAMP-SEQ=SPARS 25; | GS ACQ SCENARIO SINGLE | Pattern 1, Exps 1-2 in Visit X3 (1) | 184.223035 Secs (736.892 Secs)  |           | [1]                          |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 1)]                |           |                              |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 2)]                |           |                              |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 3)]                |           |                              |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     | [==>(Pattern 4)]                |           |                              |  |
| 2                       |                                                                      | (122) PS1-J560054                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | NSAMP=15;                | SAMP-SEQ=SPARS25   |                        | Pattern 1, Exps 1-2 in Visit X3 (1) | 321.750541 Secs (1287.002 Secs) |           | [1]                          |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 1)]                    |                                 |           |                              |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 2)]                    |                                 |           |                              |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 3)]                    |                                 |           |                              |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        | [==>(Pattern 4)]                    |                                 |           |                              |  |
| 3                       |                                                                      | (122) PS1-J560054                   | WFC3/IR, MULTIACCUM, IRSUB512    | F160W                         | SAMP-SEQ=SPARS 25;       |                    |                        |                                     | 252.986788 Secs (252.987 Secs)  |           | [1]                          |  |
|                         |                                                                      |                                     |                                  |                               |                          |                    |                        | [==>]                               |                                 |           |                              |  |
| NSAMP=12                |                                                                      |                                     |                                  |                               |                          |                    |                        |                                     |                                 |           |                              |  |



# Proposal 13046 - Visit X4 - RAISIN: Tracers of cosmic expansion with SN IA in the IR

|                       |                                                                       |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
|-----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|-------------------------|-------------------------------------|------------------------------------------------------------------------------|------------------------------|-------|
| Visit                 | Proposal 13046, Visit X4                                              |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              | Tue Nov 26 02:16:27 GMT 2013 |       |
|                       | Diagnostic Status: No Diagnostics                                     |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
|                       | Scientific Instruments: WFC3/IR                                       |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
|                       | Special Requirements: SCHED 100%; AFTER X1 BY 120 D TO 300 D; ON HOLD |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
|                       | Comments: single quide star acq is acceptable                         |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
| On Hold Comments: too |                                                                       |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
| Patterns              | #                                                                     | Primary Pattern                                                                                                          |                   |                                                                                    |                                                                                                               |                          | Secondary Pattern              |                         |                                     |                                                                              | Exposures                    |       |
|                       | (1)                                                                   | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                   |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          |                                |                         |                                     |                                                                              | (1-2)                        |       |
| Fixed Targets         | #                                                                     | Name                                                                                                                     |                   | Target Coordinates                                                                 |                                                                                                               | Targ. Coord. Corrections |                                | Fluxes                  |                                     | Miscellaneous                                                                |                              |       |
|                       | (122)                                                                 | PS1-J560054                                                                                                              |                   | RA: 23 33 10.9930 (353.2958042d)<br>Dec: -00 20 11.07 (-.33641d)<br>Equinox: J2000 |                                                                                                               |                          |                                | V=23                    |                                     | Reference Frame: ICRS                                                        |                              |       |
|                       | Comments: 2013-J-560054                                               |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     |                                                                              |                              |       |
| Exposures             | #                                                                     | Label                                                                                                                    | Target            | Config,Mode,Aperture                                                               |                                                                                                               | Spectral Els.            | Opt. Params.                   | Special Reqs.           | Groups                              | Exp. Time (Total)/[Actual Dur.]                                              |                              | Orbit |
|                       | 1                                                                     |                                                                                                                          | (122) PS1-J560054 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F125W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=9  | GS ACQ SCENARI O SINGLE | Pattern 1, Exps 1-2 in Visit X4 (1) | 184.223035 Secs (736.892 Secs)                                               |                              |       |
|                       |                                                                       |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 2                                                                     |                                                                                                                          | (122) PS1-J560054 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | NSAMP=15;<br>SAMP-SEQ=SPARS25  |                         | Pattern 1, Exps 1-2 in Visit X4 (1) | 321.750541 Secs (1287.002 Secs)                                              |                              |       |
|                       |                                                                       |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                              | [1]   |
|                       | 3                                                                     |                                                                                                                          | (122) PS1-J560054 | WFC3/IR, MULTIACCUM, IRSUB512                                                      |                                                                                                               | F160W                    | SAMP-SEQ=SPARS 25;<br>NSAMP=12 |                         |                                     | 252.986788 Secs (252.987 Secs)                                               |                              |       |
|                       |                                                                       |                                                                                                                          |                   |                                                                                    |                                                                                                               |                          |                                |                         |                                     | [==>]                                                                        |                              | [1]   |

