



# 15419 - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability investigations

Cycle: 25, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

## INVESTIGATORS

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

| <i>Visit</i> | <i>Targets used in Visit</i>     | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|----------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (6) EUROPA-ECLIPSE<br>(8) IO-ACQ | STIS/CCD                            | 2                  | 12-Feb-2020 12:01:09.0        | yes                           |
| 02           | (6) EUROPA-ECLIPSE<br>(8) IO-ACQ | STIS/CCD                            | 2                  | 12-Feb-2020 12:01:11.0        | yes                           |

| <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> |
|--------------|---------------------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 03           | (6) EUROPA-ECLIPSE                          | WFC3/UVIS                           | 2                  | 12-Feb-2020 12:01:12.0        | yes                           |
| 04           | (6) EUROPA-ECLIPSE<br>(8) IO-ACQ            | STIS/CCD                            | 2                  | 12-Feb-2020 12:01:14.0        | yes                           |
| 05           | (7) EUROPA-OFF-LIMB                         | STIS/CCD<br>STIS/NUV-MAMA           | 2                  | 12-Feb-2020 12:01:15.0        | yes                           |
| 06           | (3) EUROPA-EGRESS                           | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:17.0        | yes                           |
| 6A           | (3) EUROPA-EGRESS                           | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:18.0        | yes                           |
| 6B           | (3) EUROPA-EGRESS                           | S/C                                 | 1                  | 12-Feb-2020 12:01:18.0        | yes                           |
| 07           | (4) EUROPA-AROUND-TRANSIT                   | STIS/CCD<br>STIS/FUV-MAMA           | 4                  | 12-Feb-2020 12:01:19.0        | yes                           |
| 08           | (1) EUROPA-EAST                             | STIS/CCD<br>STIS/FUV-MAMA           | 4                  | 12-Feb-2020 12:01:22.0        | yes                           |
| 09           | (10) EUROPA-AROUND-TRANSIT2<br>(11) IO-ACQ2 | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:23.0        | yes                           |
| 9A           | (12) EUROPA-AROUND-TRANSIT3                 | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:24.0        | yes                           |
| 10           | (2) EUROPA-WEST                             | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:25.0        | yes                           |
| 23           | (2) EUROPA-WEST                             | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:26.0        | yes                           |
| 11           | (1) EUROPA-EAST                             | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:27.0        | yes                           |
| 1A           | (1) EUROPA-EAST                             | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:28.0        | yes                           |
| 12           | (9) EUROPA-TRANSIT2                         | STIS/FUV-MAMA                       | 1                  | 12-Feb-2020 12:01:29.0        | yes                           |

| <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> |
|--------------|---------------------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 13           | (14) GANYMEDE-ACQ<br>(15) EUROPA-TRANSIT3   | STIS/CCD<br>STIS/FUV-MAMA           | 1                  | 12-Feb-2020 12:01:30.0        | yes                           |
| 14           | (15) EUROPA-TRANSIT3                        | STIS/FUV-MAMA                       | 1                  | 12-Feb-2020 12:01:30.0        | yes                           |
| 15           | (5) EUROPA-TRANSIT<br>(8) IO-ACQ            | STIS/CCD<br>STIS/FUV-MAMA           | 1                  | 12-Feb-2020 12:01:31.0        | yes                           |
| 16           | (16) EUROPA-TRANSIT4<br>(18) IO-ACQ3        | STIS/CCD<br>STIS/FUV-MAMA           | 1                  | 12-Feb-2020 12:01:31.0        | yes                           |
| 17           | (1) EUROPA-EAST                             | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:32.0        | yes                           |
| 7A           | (1) EUROPA-EAST                             | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:33.0        | yes                           |
| 24           | (17) EUROPA-EAST2                           | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:34.0        | yes                           |
| 25           | (17) EUROPA-EAST2                           | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:35.0        | yes                           |
| 18           | (13) EUROPA-AROUND-TRANSIT4                 | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:36.0        | yes                           |
| 8A           | (10) EUROPA-AROUND-TRANSIT2<br>(11) IO-ACQ2 | STIS/CCD<br>STIS/FUV-MAMA           | 2                  | 12-Feb-2020 12:01:37.0        | yes                           |
| 19           | (7) EUROPA-OFF-LIMB                         | STIS/CCD<br>STIS/NUV-MAMA           | 2                  | 12-Feb-2020 12:01:39.0        | yes                           |
| 20           | (6) EUROPA-ECLIPSE                          | WFC3/UVIS                           | 1                  | 12-Feb-2020 12:01:40.0        | yes                           |
| 21           | (6) EUROPA-ECLIPSE<br>(8) IO-ACQ            | STIS/CCD                            | 2                  | 12-Feb-2020 12:01:41.0        | yes                           |
| 22           | (6) EUROPA-ECLIPSE<br>(8) IO-ACQ            | STIS/CCD                            | 2                  | 12-Feb-2020 12:01:42.0        | yes                           |
| D1           | DARK                                        | STIS/FUV-MAMA                       | 1                  | 12-Feb-2020 12:01:43.0        | yes                           |

60 Total Orbits Used

## **ABSTRACT**

Plumes from outgassing activity at Europa provide our best avenue for exploring the potential habitability of its subsurface ocean. In order to gain information on Europa's plume occurrence or variability, it is important to unambiguously detect and effectively constrain the H<sub>2</sub>O occurrence and plume properties during each observation. Localized abundance of well-detectable salt related trace species like sodium might provide additional means to detect plume activity and constrain ocean composition and/or ice grain formation within the plume venting process. In our medium-size program we exploit the long-slit spectral imaging capabilities of STIS, which uniquely provide both spectral and spatial identification of local plume-related signals. Using three different STIS spectral modes and two WFC3 narrow band filters, we globally constrain far-UV, near-UV and visible auroral emissions as well as Ly-alpha absorption from plumes in sunlight, eclipse and Jupiter transit. Due to the different observing modes and targeted geometries, the proposed 22 visits will be scheduled uniformly over the ~6-months Jupiter observing season and each visit will be carried out during optimized observing conditions maximizing the sensitivity of HST to plume signals.

## **OBSERVING DESCRIPTION**

Our program focuses on observations of auroral emissions produced by electron impact on H<sub>2</sub>O to identify water plumes at Europa with multiple setups in and out of eclipse and in and out of transit. We apply new modes to target visible auroral emissions in eclipse and near-UV aurora pointing off the limb of Europa. The setups are chosen to avoid interference with surface-reflected sunlight in both cases. A few sets of trial observations obtained using director's discretionary time are used to inform about these innovative modes. All aurora observations are to be scheduled when Europa crosses the plasma sheet to maximize auroral excitation. In addition, we propose to schedule Ly-alpha transit observation visits jointly with aurora observations as well as jointly with the FUV imaging mode from Sparks et al.

# Proposal 15419 - Eclipse H-alpha wide 1 (01) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitab...

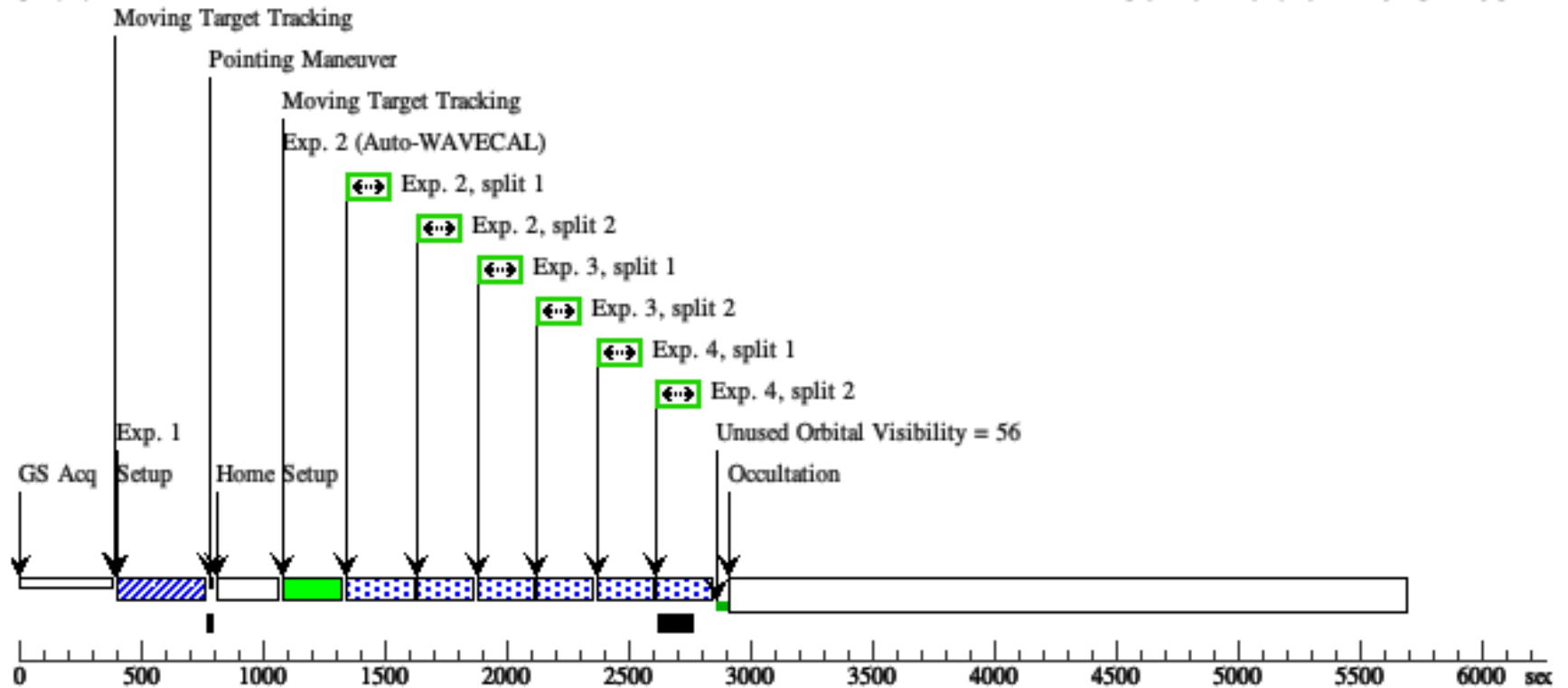
|                      |                                                                                                           |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------------------------|----------------|-------------|------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visit                | Proposal 15419, Eclipse H-alpha wide 1 (01), completed <span>Wed Feb 12 17:01:43 GMT 2020</span>          |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      | Diagnostic Status: No Diagnostics<br>Scientific Instruments: STIS/CCD<br>Special Requirements: SCHED 100% |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | #                                                                                                         | Name           | Level 1     | Level 2    | Level 3 | Window                                                                                                                                                                                                                                                                                                  |
|                      | (6)                                                                                                       | EUROPA-ECLIPSE | STD=JUPITER | STD=EUROPA |         | NOT OCC OF EUROPA-ECLIPSE BY JUPITER FROM EARTH,<br>SEP OF EUROPA-ECLIPSE JUPITER FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE IO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE GANYMEDE FROM EARTH GT 5",<br>ECL U FULL OF EUROPA BY JUPITER FROM EARTH |
|                      | Comments: Description=Europa<br>Extended=YES                                                              |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | (8)                                                                                                       | IO-ACQ         | STD=JUPITER | STD=IO     |         | NOT OCC OF IO-ACQ BY JUPITER FROM EARTH,<br>SEP OF IO-ACQ JUPITER FROM EARTH GT 10",<br>SEP OF IO-ACQ CALLISTO FROM EARTH GT 5",<br>SEP OF IO-ACQ EUROPA FROM EARTH GT 5",<br>SEP OF IO-ACQ GANYMEDE FROM EARTH GT 5"                                                                                   |
|                      | Comments: Description=IO<br>Extended=YES                                                                  |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      |                                                                                                           |                |             |            |         |                                                                                                                                                                                                                                                                                                         |

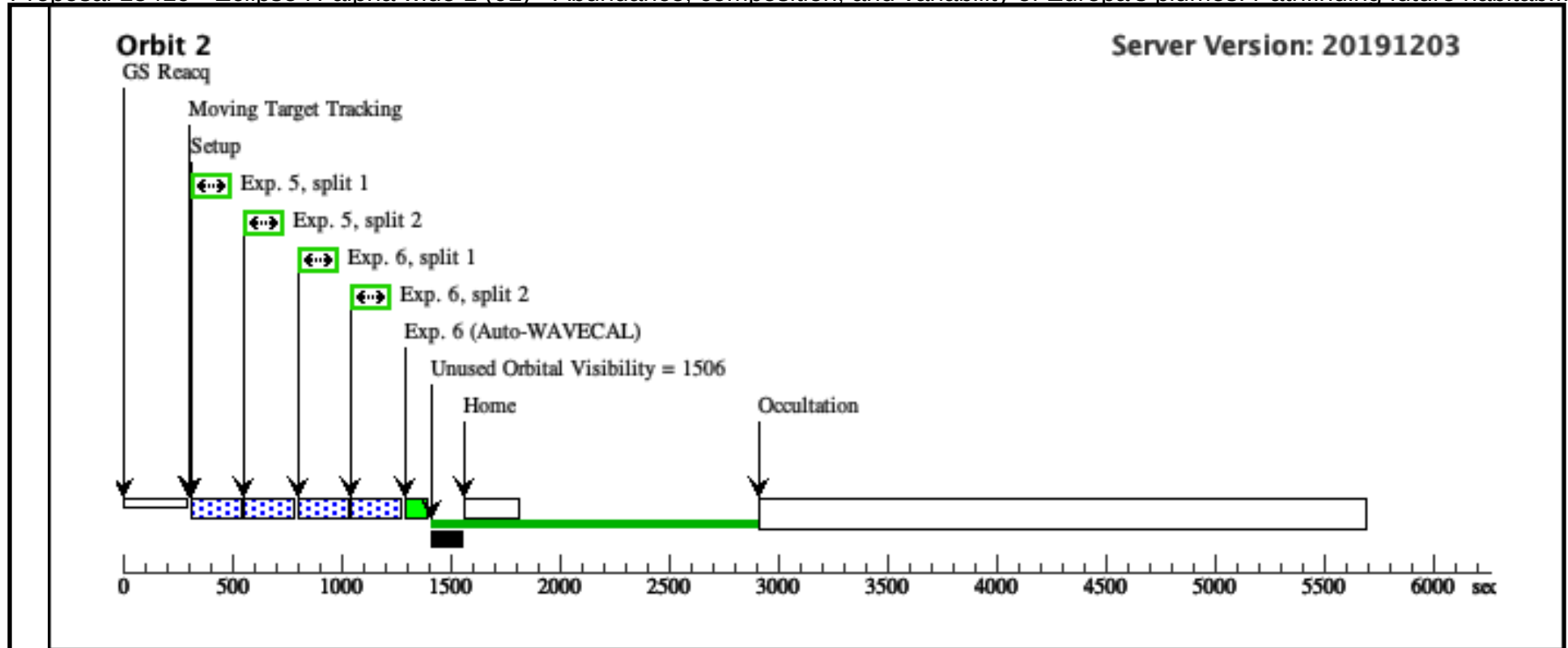
Proposal 15419 - Eclipse H-alpha wide 1 (01) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitab...

| Exposures | #                                                                                                                                                                                                               | Label       | Target             | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.                                                        | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.]                         | Orbit |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------|-------------------------|-----------------|---------------------------------------------------------------------|-------------------------|--------|---------------------------------------------------------|-------|
|           | 1                                                                                                                                                                                                               | Acquisition | (8) IO-ACQ         | STIS/CCD, ACQ, F28X50LP | MIRROR          | CHECKBOX=21;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER | GS ACQ SCENARIO BASE1BE |        | 0.3 Secs (0.3 Secs)<br>[==>]                            | [1]   |
|           | Comments: Checkbox parameter selected for size of Io in the periods of Feb/Mar 2018 & July/Aug 2018. If closer to Jupiter opposition 2018 (April - June) or other moon, the checkbox size needs to be adjusted. |             |                    |                         |                 |                                                                     |                         |        |                                                         |       |
|           | 2                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               | GS ACQ SCENARIO BASE1BE |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 3                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |                         |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 4                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |                         |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 5                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |                         |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]   |
|           | 6                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |                         |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]   |

## Orbit 1

Server Version: 20191203



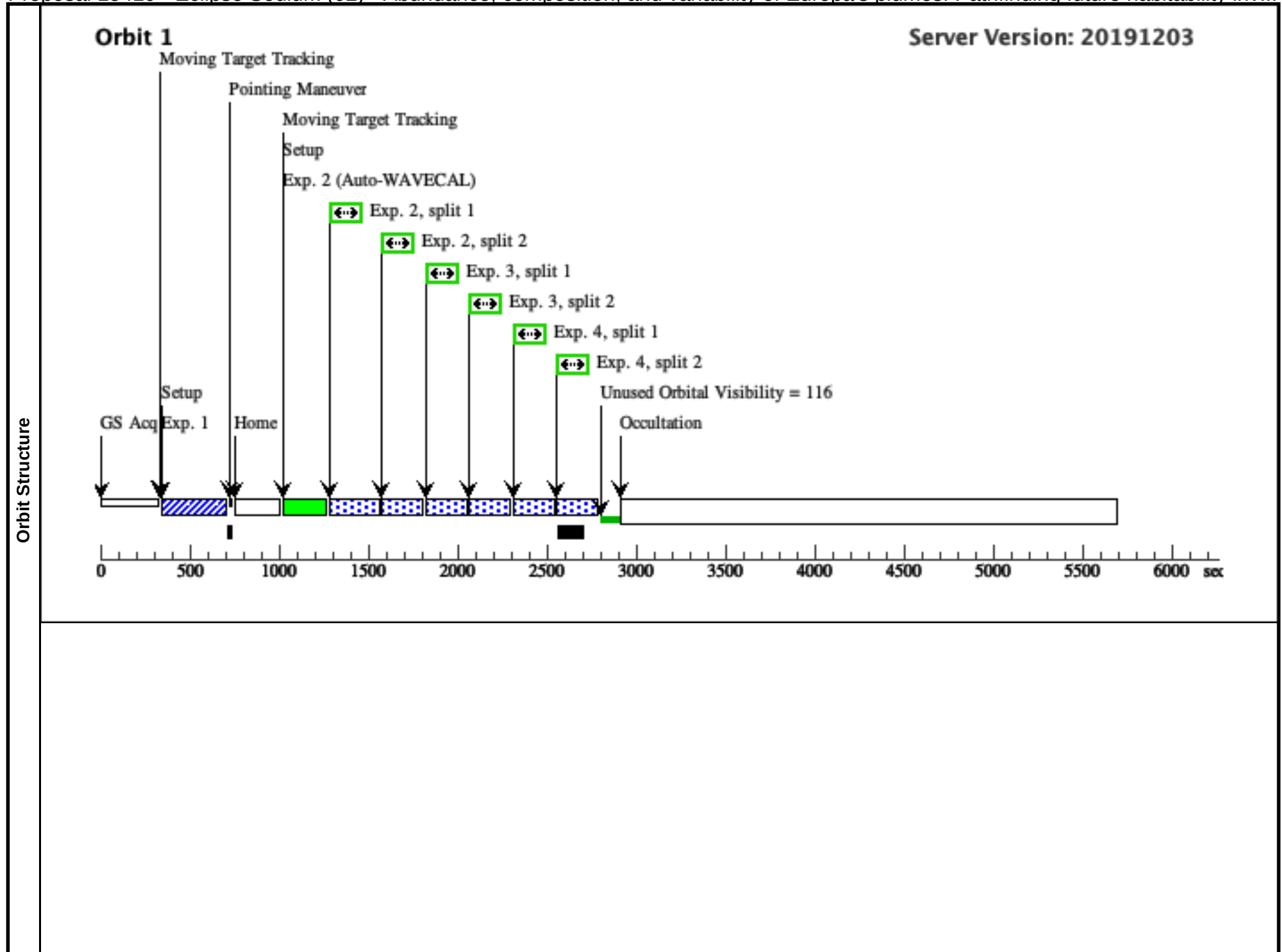


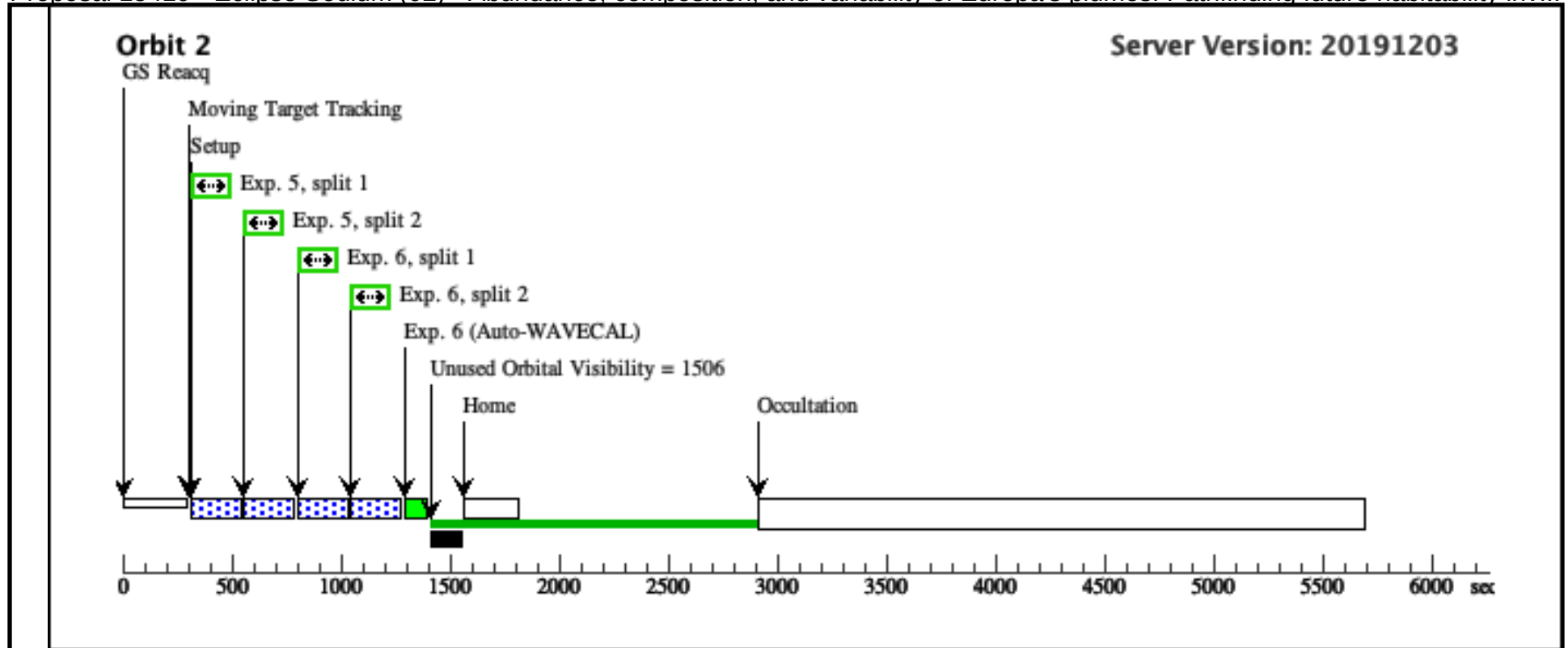
# Proposal 15419 - Eclipse Sodium (02) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability inv...

|                      |                                                                                                                                                                  |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visit                | Proposal 15419, Eclipse Sodium (02), completed <span>Wed Feb 12 17:01:44 GMT 2020</span>                                                                         |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      | Diagnostic Status: No Diagnostics<br>Scientific Instruments: STIS/CCD<br>Special Requirements: SCHED 100%; BETWEEN 18-MAR-2018:22:00:00 AND 19-MAR-2018:00:00:00 |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | #                                                                                                                                                                | Name           | Level 1     | Level 2    | Level 3 | Window                                                                                                                                                                                                                                                                                                  |
|                      | (6)                                                                                                                                                              | EUROPA-ECLIPSE | STD=JUPITER | STD=EUROPA |         | NOT OCC OF EUROPA-ECLIPSE BY JUPITER FROM EARTH,<br>SEP OF EUROPA-ECLIPSE JUPITER FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE IO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE GANYMEDE FROM EARTH GT 5",<br>ECL U FULL OF EUROPA BY JUPITER FROM EARTH |
|                      | Comments: Description=Europa<br>Extended=YES                                                                                                                     |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | (8)                                                                                                                                                              | IO-ACQ         | STD=JUPITER | STD=IO     |         | NOT OCC OF IO-ACQ BY JUPITER FROM EARTH,<br>SEP OF IO-ACQ JUPITER FROM EARTH GT 10",<br>SEP OF IO-ACQ CALLISTO FROM EARTH GT 5",<br>SEP OF IO-ACQ EUROPA FROM EARTH GT 5",<br>SEP OF IO-ACQ GANYMEDE FROM EARTH GT 5"                                                                                   |
|                      | Comments: Description=IO<br>Extended=YES                                                                                                                         |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      |                                                                                                                                                                  |                |             |            |         |                                                                                                                                                                                                                                                                                                         |

Proposal 15419 - Eclipse Sodium (02) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability inv...

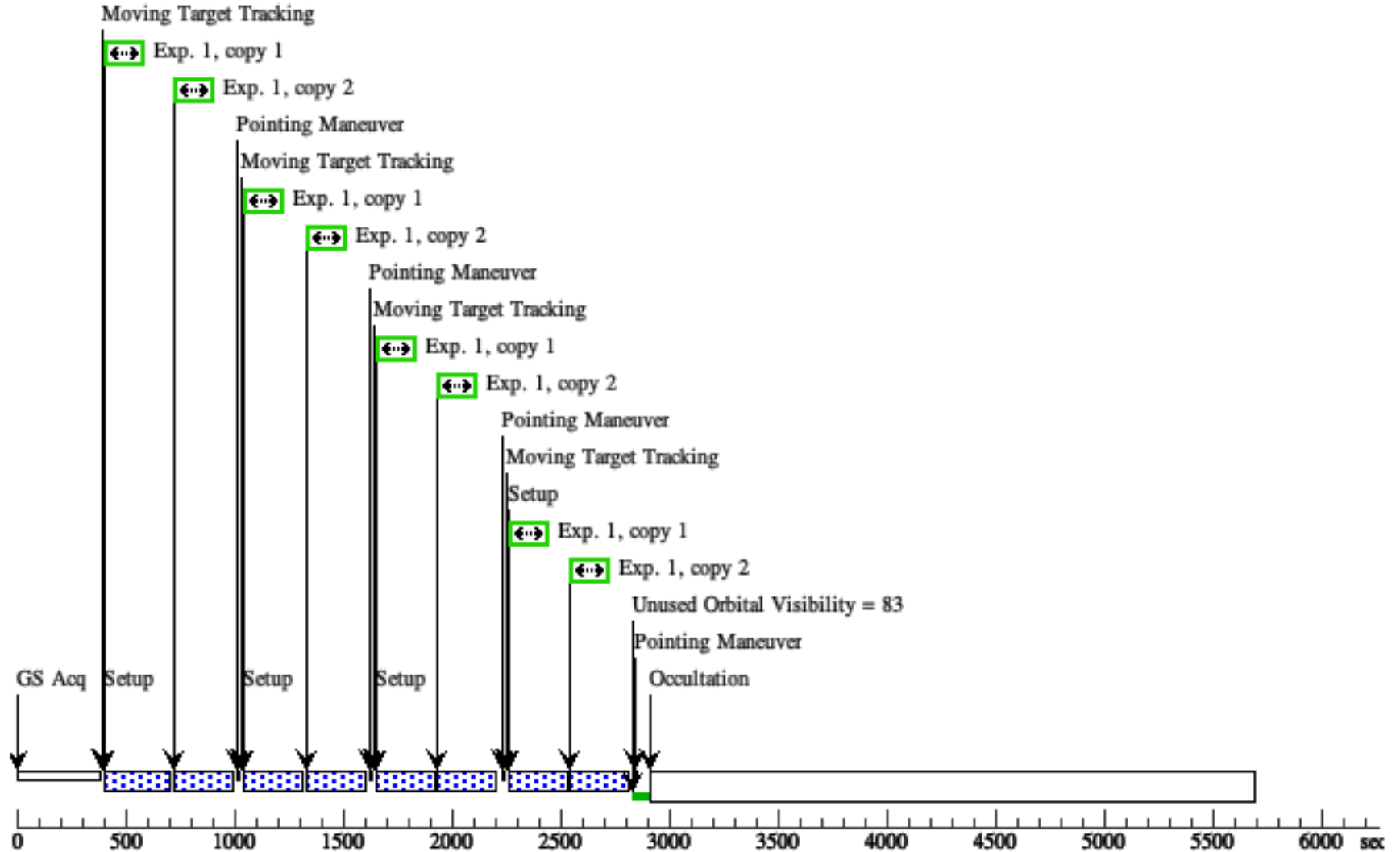
| Exposures | #                                                                                                                                                                                                               | Label       | Target             | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.                                                        | Special Reqs.                                 | Groups | Exp. Time (Total)/[Actual Dur.]                         | Orbit |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------|-------------------------|-----------------|---------------------------------------------------------------------|-----------------------------------------------|--------|---------------------------------------------------------|-------|
|           | 1                                                                                                                                                                                                               | Acquisition | (8) IO-ACQ         | STIS/CCD, ACQ, F28X50LP | MIRROR          | CHECKBOX=21;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER | GS ACQ SCENARIO BASE1B3                       |        | 0.3 Secs (0.3 Secs)<br>[==>]                            | [1]   |
|           | Comments: Checkbox parameter selected for size of Io in the periods of Feb/Mar 2018 & July/Aug 2018. If closer to Jupiter opposition 2018 (April - June) or other moon, the checkbox size needs to be adjusted. |             |                    |                         |                 |                                                                     |                                               |        |                                                         |       |
|           | 2                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6094 A | GAIN=1;<br>CR-SPLIT=2                                               | POS TARG null,-24;<br>GS ACQ SCENARIO BASE1B3 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 3                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6094 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 4                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6094 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 5                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6094 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]   |
|           | 6                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6094 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]   |

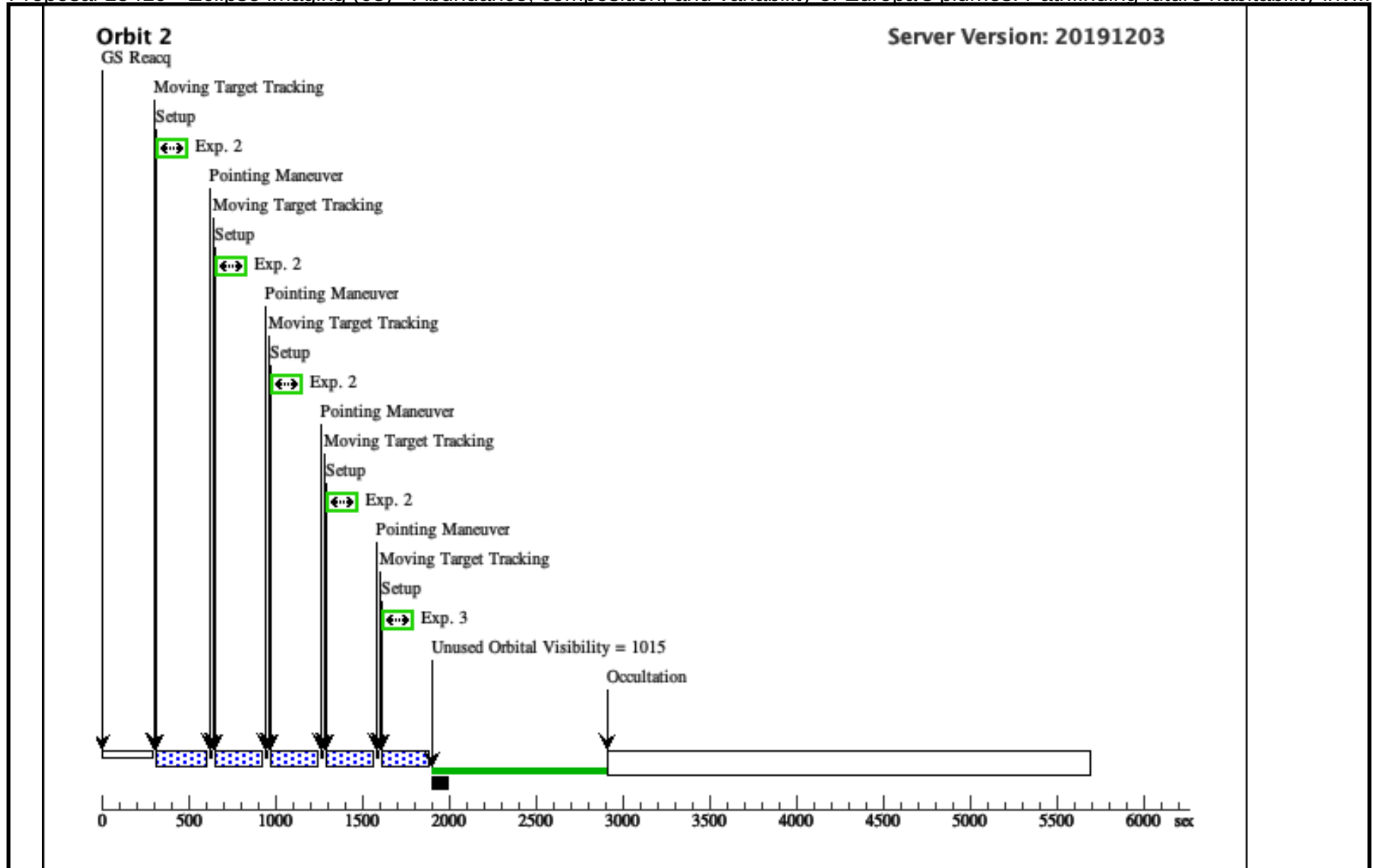




Proposal 15419 - Eclipse imaging (03) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability inv...

|                      |                                                                                         |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              |           |     |
|----------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|------------|---------------|-------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------|-----|
| Visit                | Proposal 15419, Eclipse imaging (03), completed                                         |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              | Wed Feb 12 17:01:44 GMT 2020 |           |     |
|                      | Diagnostic Status: No Diagnostics                                                       |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              |           |     |
|                      | Scientific Instruments: WFC3/UVIS                                                       |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              |           |     |
|                      | Special Requirements: SCHED 100%; BETWEEN 30-AUG-2019:11:35:00 AND 30-AUG-2019:12:45:00 |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              |           |     |
| Patterns             | #                                                                                       | Primary Pattern                                                                                                                                                                                                                         |                                   |                                   |            |               | Secondary Pattern |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              | Exposures |     |
|                      | (1)                                                                                     | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Purpose=DITHER<br>Angle Between Sides=81.785<br>Number Of Points=4<br>Center Pattern=false<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              | (1), (2)  |     |
| Solar System Targets | #                                                                                       | Name                                                                                                                                                                                                                                    | Level 1                           |                                   | Level 2    |               | Level 3           |                         | Window                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                              | Ephem Center                 |           |     |
|                      | (6)                                                                                     | EUROPA-ECLIPSE                                                                                                                                                                                                                          | STD=JUPITER                       |                                   | STD=EUROPA |               |                   |                         | NOT OCC OF EUROPA-ECLIPSE BY JUPITER FROM EARTH, SEP OF EUROPA-ECLIPSE JUPITER FROM EARTH GT 5", SEP OF EUROPA-ECLIPSE CALLISTO FROM EARTH GT 5", SEP OF EUROPA-ECLIPSE IO FROM EARTH GT 5", SEP OF EUROPA-ECLIPSE GANYMEDE FROM EARTH GT 5", ECL U FULL OF EUROPA BY JUPITER FROM EARTH |                                                                                                                                                                                                                              | EARTH                        |           |     |
|                      | Comments: Description=Europa<br>Extended=YES                                            |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                              |                              |           |     |
| Exposures            | #                                                                                       | Label                                                                                                                                                                                                                                   | Target                            | Config,Mode,Aperture              |            | Spectral Els. | Opt. Params.      | Special Reqs.           | Groups                                                                                                                                                                                                                                                                                   | Exp. Time (Total)/[Actual Dur.]                                                                                                                                                                                              |                              | Orbit     |     |
|                      | 1                                                                                       |                                                                                                                                                                                                                                         | (6) EUROPA-ECLIPSE                | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB |            | F631N         | FLASH=11          | GS ACQ SCENARIO BASE1BE | Pattern 1, Exps 1-1 in Eclipse imaging (03) (1)                                                                                                                                                                                                                                          | 230 Secs X 2 (1840 Secs)                                                                                                                                                                                                     |                              | [1]       |     |
|                      |                                                                                         |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          | [==>(Pattern 1, Copy 1)]<br>[==>(Pattern 1, Copy 2)]<br>[==>(Pattern 2, Copy 1)]<br>[==>(Pattern 2, Copy 2)]<br>[==>(Pattern 3, Copy 1)]<br>[==>(Pattern 3, Copy 2)]<br>[==>(Pattern 4, Copy 1)]<br>[==>(Pattern 4, Copy 2)] |                              |           |     |
|                      | 2                                                                                       |                                                                                                                                                                                                                                         | (6) EUROPA-ECLIPSE                | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB |            | F656N         | FLASH=11          |                         | Pattern 1, Exps 2-2 in Eclipse imaging (03) (1)                                                                                                                                                                                                                                          | 230 Secs (920 Secs)                                                                                                                                                                                                          |                              |           | [2] |
|                      |                                                                                         |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                                                                                                                                 |                              |           |     |
| 3                    |                                                                                         | (6) EUROPA-ECLIPSE                                                                                                                                                                                                                      | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB |                                   | F656N      | FLASH=11      |                   |                         | 230 Secs (230 Secs)                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                              |                              |           |     |
|                      |                                                                                         |                                                                                                                                                                                                                                         |                                   |                                   |            |               |                   |                         |                                                                                                                                                                                                                                                                                          | [==>]                                                                                                                                                                                                                        |                              | [2]       |     |



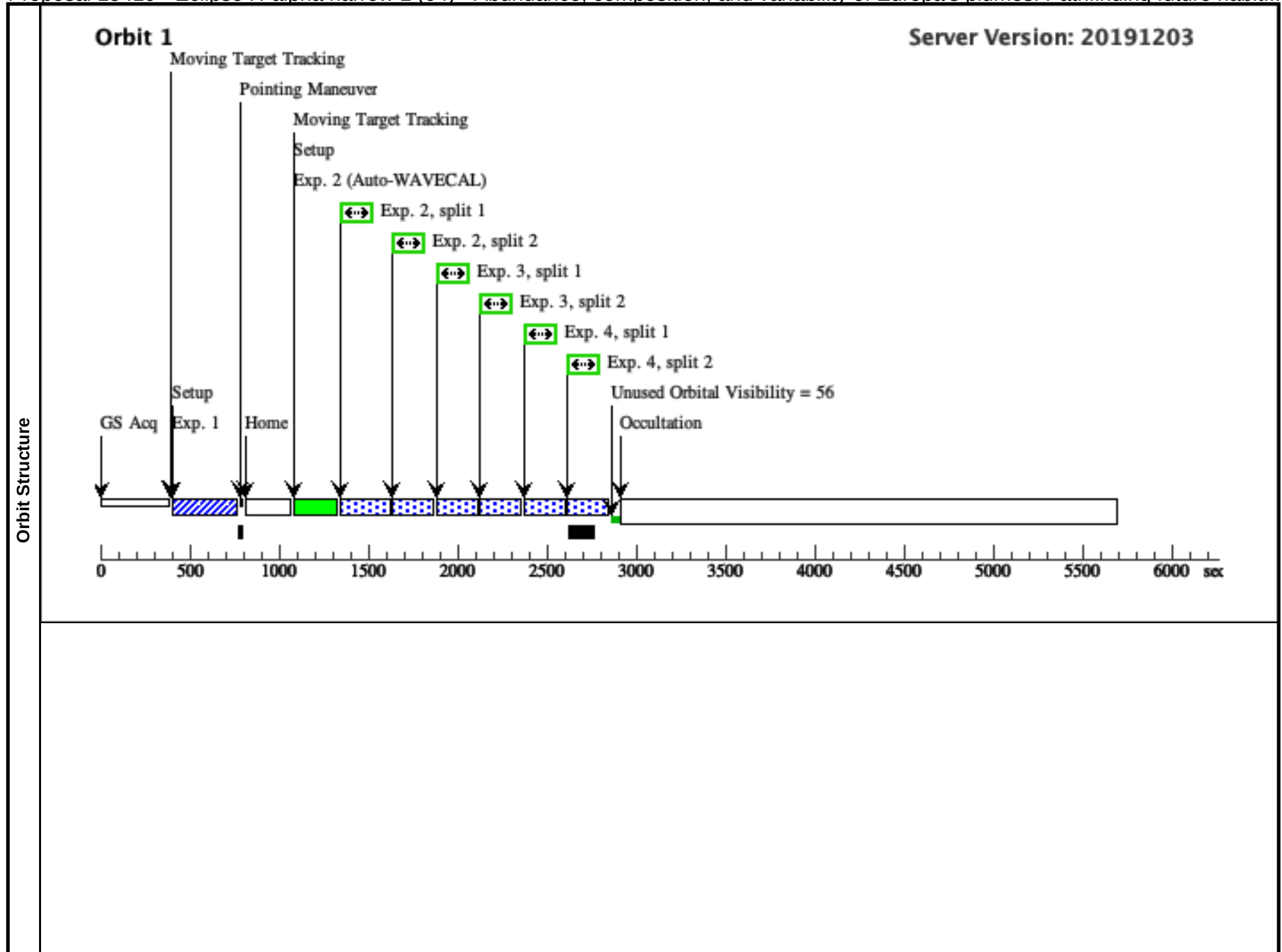


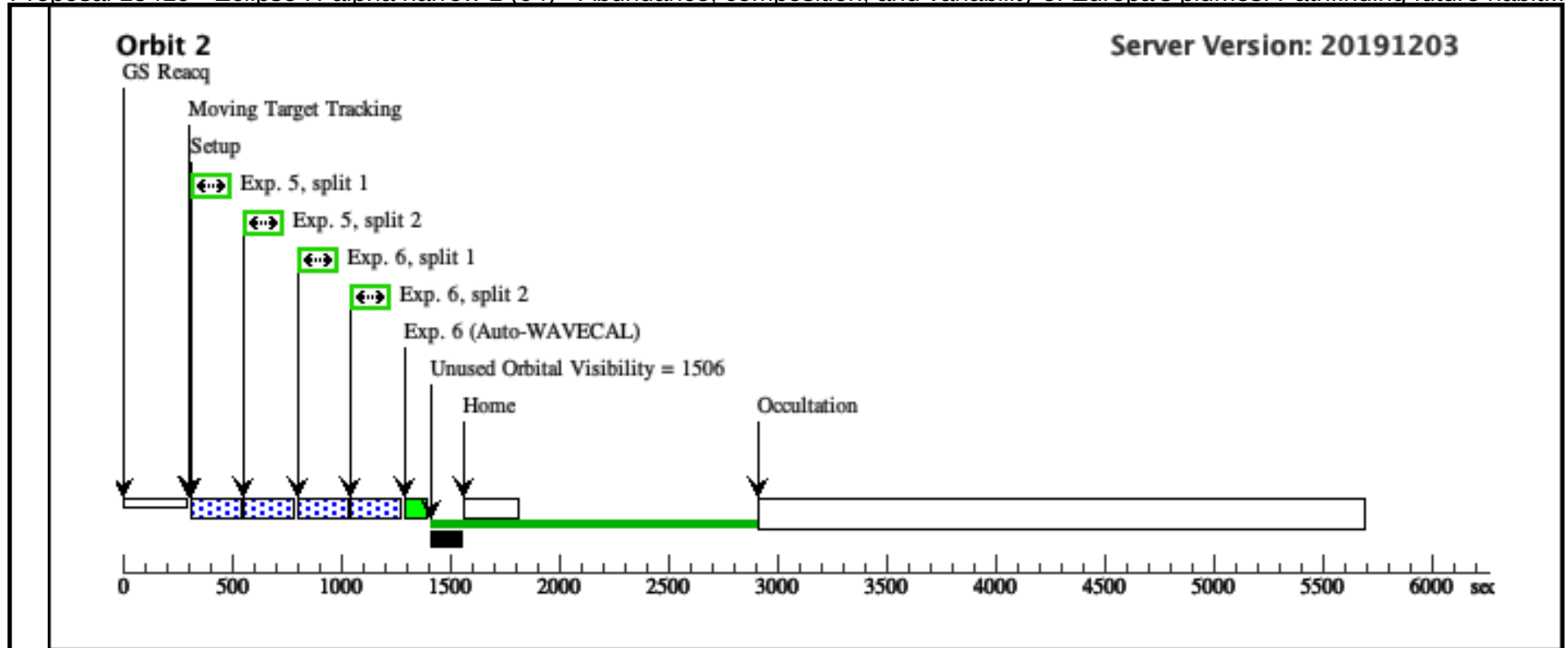
# Proposal 15419 - Eclipse H-alpha narrow 1 (04) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habit...

|                      |                                                                                                           |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------------------------|----------------|-------------|------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visit                | Proposal 15419, Eclipse H-alpha narrow 1 (04), completed <span>Wed Feb 12 17:01:44 GMT 2020</span>        |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      | Diagnostic Status: No Diagnostics<br>Scientific Instruments: STIS/CCD<br>Special Requirements: SCHED 100% |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | #                                                                                                         | Name           | Level 1     | Level 2    | Level 3 | Window                                                                                                                                                                                                                                                                                                  |
|                      | (6)                                                                                                       | EUROPA-ECLIPSE | STD=JUPITER | STD=EUROPA |         | NOT OCC OF EUROPA-ECLIPSE BY JUPITER FROM EARTH,<br>SEP OF EUROPA-ECLIPSE JUPITER FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE IO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE GANYMEDE FROM EARTH GT 5",<br>ECL U FULL OF EUROPA BY JUPITER FROM EARTH |
|                      | Comments: Description=Europa<br>Extended=YES                                                              |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | (8)                                                                                                       | IO-ACQ         | STD=JUPITER | STD=IO     |         | NOT OCC OF IO-ACQ BY JUPITER FROM EARTH,<br>SEP OF IO-ACQ JUPITER FROM EARTH GT 10",<br>SEP OF IO-ACQ CALLISTO FROM EARTH GT 5",<br>SEP OF IO-ACQ EUROPA FROM EARTH GT 5",<br>SEP OF IO-ACQ GANYMEDE FROM EARTH GT 5"                                                                                   |
|                      | Comments: Description=IO<br>Extended=YES                                                                  |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      |                                                                                                           |                |             |            |         |                                                                                                                                                                                                                                                                                                         |

Proposal 15419 - Eclipse H-alpha narrow 1 (04) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habit...

| Exposures | #                                                                                                                                                                                                               | Label       | Target             | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.                                                        | Special Reqs.                                 | Groups | Exp. Time (Total)/[Actual Dur.]                         | Orbit |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------|-------------------------|-----------------|---------------------------------------------------------------------|-----------------------------------------------|--------|---------------------------------------------------------|-------|
|           | 1                                                                                                                                                                                                               | Acquisition | (8) IO-ACQ         | STIS/CCD, ACQ, F28X50LP | MIRROR          | CHECKBOX=21;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER | GS ACQ SCENARIO BASE1BE                       |        | 0.3 Secs (0.3 Secs)<br>[==>]                            | [1]   |
|           | Comments: Checkbox parameter selected for size of Io in the periods of Feb/Mar 2018 & July/Aug 2018. If closer to Jupiter opposition 2018 (April - June) or other moon, the checkbox size needs to be adjusted. |             |                    |                         |                 |                                                                     |                                               |        |                                                         |       |
|           | 2                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               | POS TARG null,-24;<br>GS ACQ SCENARIO BASE1BE |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 3                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 4                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]   |
|           | 5                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]   |
|           | 6                                                                                                                                                                                                               |             | (6) EUROPA-ECLIPSE | STIS/CCD, ACCUM, 52X2   | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               | SAME POS AS 2                                 |        | 400 Secs (400 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]   |
|           |                                                                                                                                                                                                                 |             |                    |                         |                 |                                                                     |                                               |        |                                                         |       |
|           |                                                                                                                                                                                                                 |             |                    |                         |                 |                                                                     |                                               |        |                                                         |       |



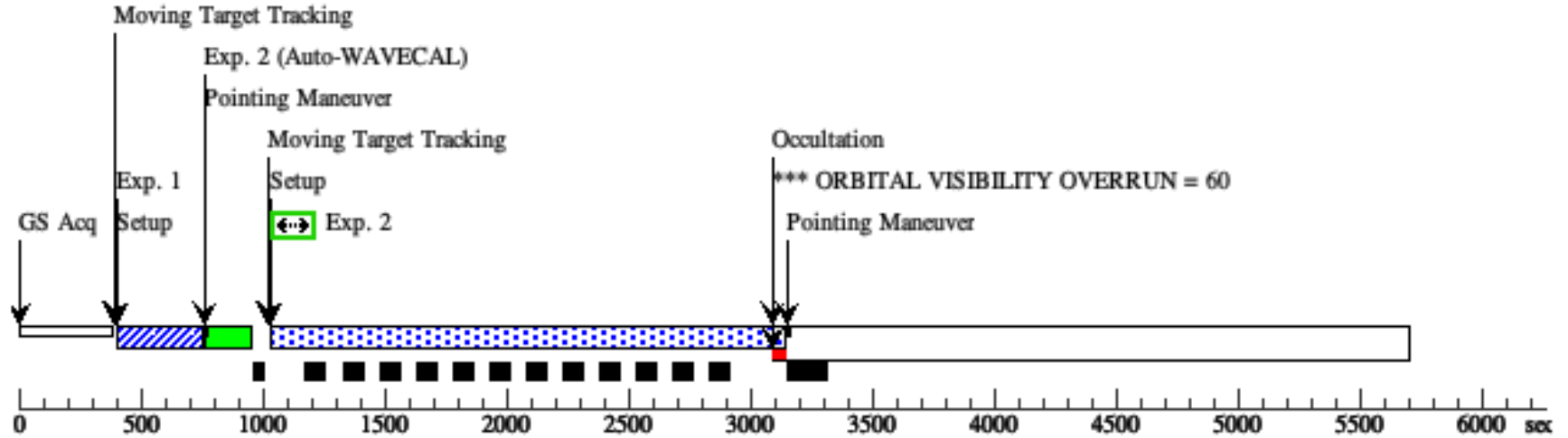


# Proposal 15419 - NUV off-limb before opp (05) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habita...

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------|---------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------|--------------------------------------------|-------|
| Visit                | Proposal 15419, NUV off-limb before opp (05), completed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         | Wed Feb 12 17:01:44 GMT 2020 |                                            |       |
|                      | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | Scientific Instruments: STIS/NUV-MAMA, STIS/CCD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | Special Requirements: SCHED 40%; ORIENT 298D TO 300 D; BETWEEN 19-MAR-2018:00:00:00 AND 17-APR-2018:00:00:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | Comments: This visit required precise off-limb targeting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
| Diagnostics          | The slit should be parallel to the equator, i.e. have an angle of 90 degrees with respect to the polar axis (slightly differeny from original planing where we wanted the slit at a 60 deg angle w.r.t. the polar axis). This is constrained through the ORIENT keyword, which is calcualted using the approximate angle between Europa North and Celestial North before opposition (-16 deg) and the offset of the STIS detector y axis from the telescope U3 axis (45.3 deg). ORIENT = 90 deg + 45 deg - 16 deg = 119 deg. Before opposition, the available ORIENT range is near 270, so this means +180 deg: ORIENT = 117 deg + 180 deg ~ 299 deg.                                                                        |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | Furthermore, the slit needs to be shifted from the center of the disk to Europa south along the dispersion (x) axis such that the slit center has an offsets of 0.2 arcsec (1st exposure) and 0.4 arcsec (2nd exposure) to the limb of the disk. At the currently requested observing period between 19 March and 17 April 2018, Europa's angular diameter is between 0.90 and 0.96 arcsec. Thus, the radius is about 0.465 arcsec. Therefore, the POS TARG keyword is set to $X = 0.465 + 0.2 = 0.665$ .<br>UPDATE POS TARG when exact window is selected!                                                                                                                                                                  |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | Update:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | Observation on 2018 March 28: JupiterNorth to CelestialNorth angle CCW: -15.3 deg. The available orient range is (u3) 264 to 303 degrees. Europa radius: 0.43 ". Offset for exposure 1: $X = 0.43 + 0.20 = 0.63$ . Offset for exposure 2: $X = 0.43 + 0.40 = 0.83$ . The calculations give the shift of the slit w.r.t. the target, but the POS TARG X keyword must then be negative, because it gives the position of the target w.r.t. the slit instead. So $X = -0.63$ and $-0.83$ , respectively.                                                                                                                                                                                                                        |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | (NUV off-limb before opp (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(NUV off-limb before opp (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(NUV off-limb before opp (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE<br>(NUV off-limb before opp (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE<br>(NUV off-limb before opp (05)) Warning (Orbit Planner): STIS TIME-TAG EXPOSURE GENERATES HEAVY DATA VOLUME<br>(Exposure 2 (NUV off-limb before opp (05))) Warning (Form): Sensitive exposures should have an ETC run number provided.<br>(Exposure 3 (NUV off-limb before opp (05))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
| Solar System Targets | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Name            | Level 1             | Level 2                         | Level 3         | Window                                                                                                                                                                                                                      | Ephem Center            |                              |                                            |       |
|                      | (7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | EUROPA-OFF-LIMB | STD=JUPITER         | STD=EUROPA                      |                 | NOT OCC OF EUROPA-WEST BY JUPITER FROM EARTH, SEP OF EUROPA-OFF-LIMB CALLISTO FROM EARTH GT 5", SEP OF EUROPA-OFF-LIMB IO FROM EARTH GT 5", SEP OF EUROPA-OFF-LIMB GANYMEDE FROM EARTH GT 5", OLG OF EUROPA BETWEEN 260 310 | EARTH                   |                              |                                            |       |
| Exposures            | Comments: Description=Europa<br>Extended=YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |                     |                                 |                 |                                                                                                                                                                                                                             |                         |                              |                                            |       |
|                      | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Label           | Target              | Config,Mode,Aperture            | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                | Special Reqs.           | Groups                       | Exp. Time (Total)/[Actual Dur.]            | Orbit |
|                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Acquisition     | (7) EUROPA-OFF-LIMB | STIS/CCD, ACQ, F28X50LP         | MIRROR          | CHECKBOX=19;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                         |                         |                              | 0.3 Secs (0.3 Secs)<br>[==>]               | [1]   |
|                      | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 | (7) EUROPA-OFF-LIMB | STIS/NUV-MAMA, TIME-TAG, 52X0.2 | G230L<br>2376 A | BUFFER-TIME=15<br>0                                                                                                                                                                                                         | POS TARG -0.63,0        |                              | 2200 Secs (2093 Secs)<br>[==>2093.0 Secs ] | [1]   |
|                      | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 | (7) EUROPA-OFF-LIMB | STIS/NUV-MAMA, TIME-TAG, 52X0.2 | G230L<br>2376 A | BUFFER-TIME=15<br>0                                                                                                                                                                                                         | POS TARG -0.83,nu<br>ll |                              | 2700 Secs (2892 Secs)<br>[==>2892.0 Secs ] | [2]   |

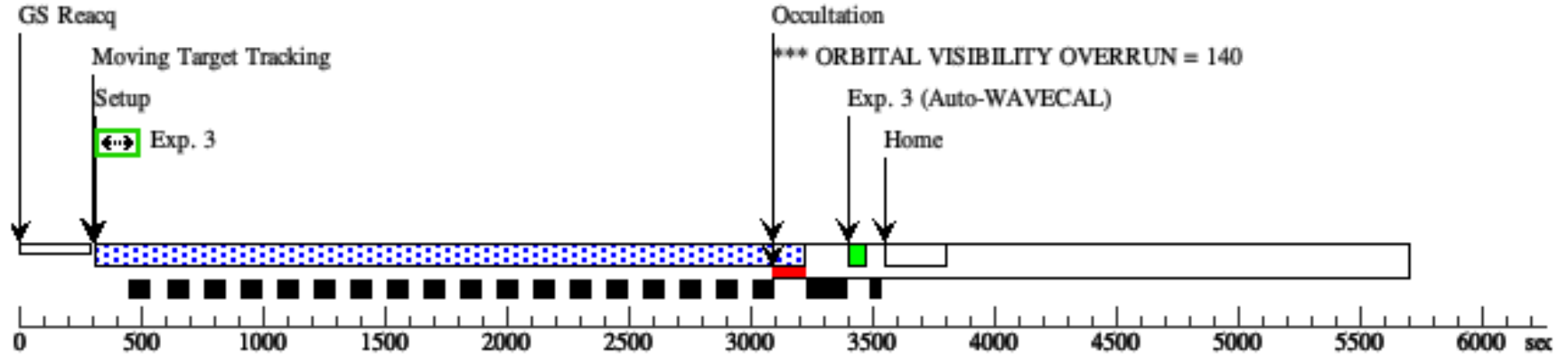
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

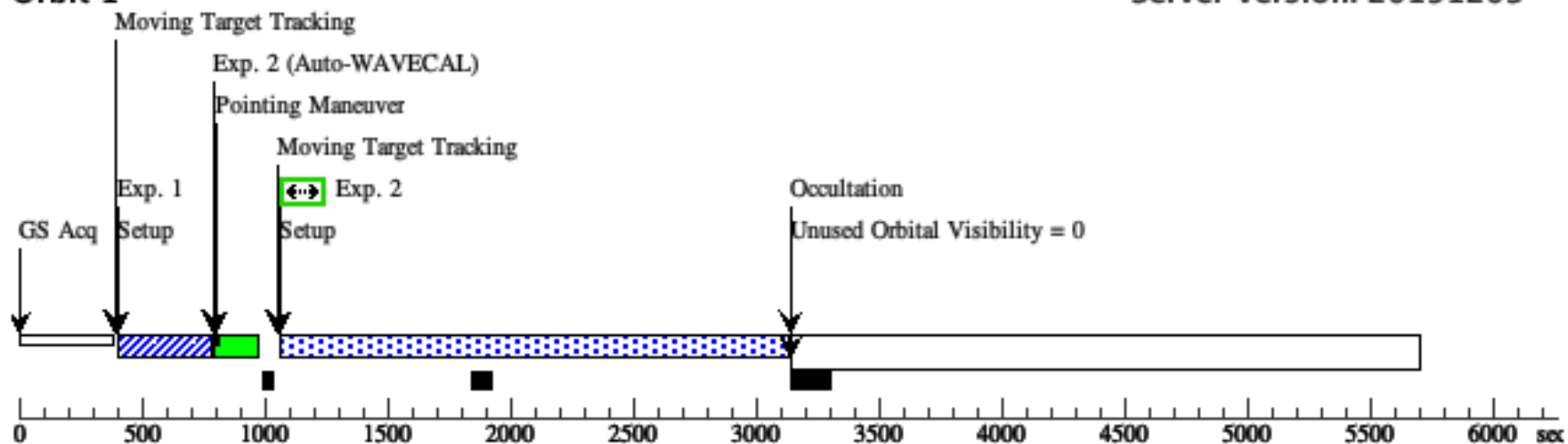


Proposal 15419 - FUV Europa-egress (06) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitabilit...

|                                                                                                                                                                                                                                     |                                                                                                                   |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|-------------------|-------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------|---------------------------------|-------|------------------------------|
| Visit                                                                                                                                                                                                                               | Proposal 15419, FUV Europa-egress (06), completed                                                                 |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       | Wed Feb 12 17:01:44 GMT 2020 |
|                                                                                                                                                                                                                                     | Diagnostic Status: Warning                                                                                        |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
|                                                                                                                                                                                                                                     | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
|                                                                                                                                                                                                                                     | Special Requirements: (none)                                                                                      |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
| Comments: Visit 6 was originally four orbits long. Due to gyro bias issues it needed to be split into two 2 orbit visits. This visit contains first two orbits. Gyro bias visit 15419 6B should be schedule right after this visit. |                                                                                                                   |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
| Diagnostics                                                                                                                                                                                                                         | (FUV Europa-egress (06)) Warning (Orbit Planner): INVALID GS ACQ SCENARIO SPECIAL REQUIREMENT                     |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
|                                                                                                                                                                                                                                     | (Exposure 2 (FUV Europa-egress (06))) Warning (Form): Sensitive exposures should have an ETC run number provided. |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
|                                                                                                                                                                                                                                     | (Exposure 3 (FUV Europa-egress (06))) Warning (Form): Sensitive exposures should have an ETC run number provided. |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
| Solar System Targets                                                                                                                                                                                                                | #                                                                                                                 | Name          | Level 1           | Level 2                       | Level 3       | Window                                                                                                                                                                                                                                     | Ephem Center                              |        |                                 |       |                              |
|                                                                                                                                                                                                                                     | (3)                                                                                                               | EUROPA-EGRESS | STD=JUPITER       | STD=EUROPA                    |               | NOT OCC OF EUROPA-EGRESS BY JUPITER FROM EARTH, SEP OF EUROPA-EGRESS JUPITER FROM EARTH GT 2", SEP OF EUROPA-EGRESS CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EGRESS IO FROM EARTH GT 10", SEP OF EUROPA-EGRESS GANYMEDE FROM EARTH GT 10" | EARTH                                     |        |                                 |       |                              |
|                                                                                                                                                                                                                                     | Comments: Description=Europa<br>Extended=YES                                                                      |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        |                                 |       |                              |
| Exposures                                                                                                                                                                                                                           | #                                                                                                                 | Label         | Target            | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                                               | Special Reqs.                             | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                                                                                                                                                                                                                                     | 1                                                                                                                 | Acquisition   | (3) EUROPA-EGRESS | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=23; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                              | GS ACQ SCENARIO BASE1BE                   |        | 0.3 Secs (0.3 Secs)             |       |                              |
|                                                                                                                                                                                                                                     |                                                                                                                   |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        | [==>]                           | [1]   |                              |
|                                                                                                                                                                                                                                     | 2                                                                                                                 |               | (3) EUROPA-EGRESS | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                                           | POS TARG null,-5; GS ACQ SCENARIO BASE1BE |        | 1798 Secs (2012 Secs)           |       |                              |
|                                                                                                                                                                                                                                     |                                                                                                                   |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           |        | [==>2012.0 Secs ]               | [1]   |                              |
|                                                                                                                                                                                                                                     | 3                                                                                                                 |               | (3) EUROPA-EGRESS | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                                           | SAME POS AS 2                             |        | 1300 Secs (1300 Secs)           |       |                              |
|                                                                                                                                                                                                                                     |                                                                                                                   |               |                   |                               |               |                                                                                                                                                                                                                                            |                                           | [==>]  | [2]                             |       |                              |

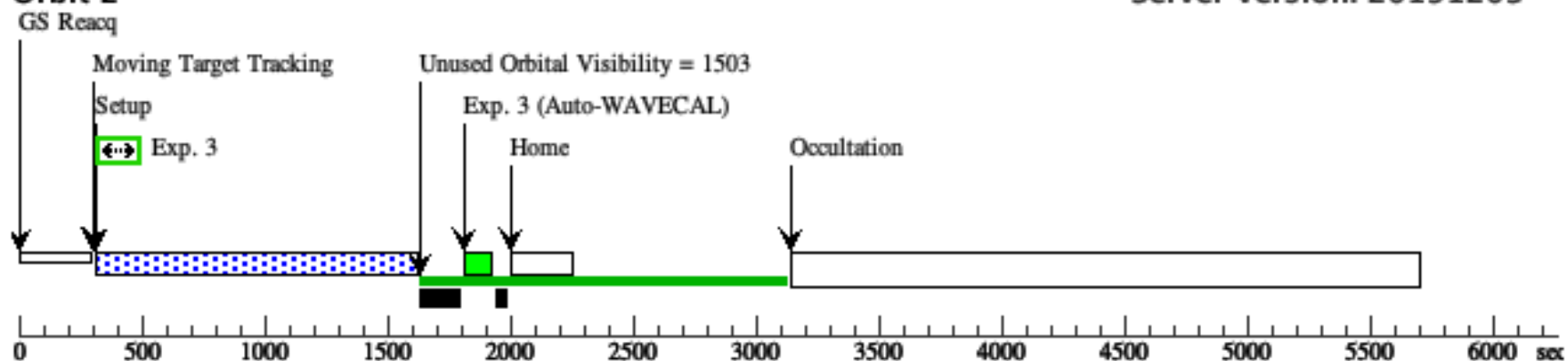
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

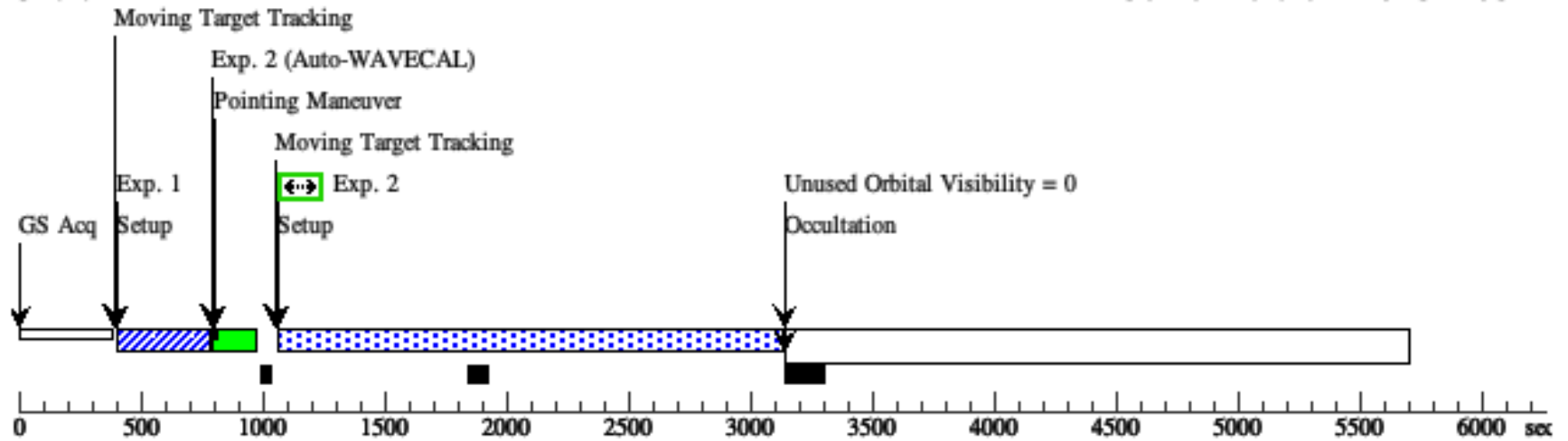


# Proposal 15419 - FUV Europa-egress (6A) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitabilit...

|                                                                                                                                                                                                             |                                                                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|-------------------|-------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------|---------------------------------|-----|------------------------------|--|--|
| Visit                                                                                                                                                                                                       | Proposal 15419, FUV Europa-egress (6A), completed                                                                 |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     | Wed Feb 12 17:01:44 GMT 2020 |  |  |
|                                                                                                                                                                                                             | Diagnostic Status: Warning                                                                                        |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
|                                                                                                                                                                                                             | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
|                                                                                                                                                                                                             | Special Requirements: SAME ORIENT AS 06                                                                           |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
| Comments: Visit 6 was originally four orbits long. Due to gyro bias issues it needed to be split into two 2 orbit visits. This visit contains final two orbits and follows gyro bias update visit 15419 6B. |                                                                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
| Diagnostics                                                                                                                                                                                                 | (FUV Europa-egress (6A)) Warning (Orbit Planner): INVALID GS ACQ SCENARIO SPECIAL REQUIREMENT                     |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
|                                                                                                                                                                                                             | (Exposure 2 (FUV Europa-egress (6A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
| (Exposure 3 (FUV Europa-egress (6A))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                                           |                                                                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
| Solar System Targets                                                                                                                                                                                        | #                                                                                                                 | Name          | Level 1           | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                | Ephem Center                                 |                   |                                 |     |                              |  |  |
|                                                                                                                                                                                                             | (3)                                                                                                               | EUROPA-EGRESS | STD=JUPITER       | STD=EUROPA                    |                 | NOT OCC OF EUROPA-EGRESS<br>BY JUPITER FROM EARTH,<br>SEP OF EUROPA-EGRESS JUPITER<br>FROM EARTH GT 2",<br>SEP OF EUROPA-EGRESS<br>CALLISTO FROM EARTH GT 10",<br>SEP OF EUROPA-EGRESS IO<br>FROM EARTH GT 10",<br>SEP OF EUROPA-EGRESS<br>GANYMEDE FROM EARTH GT 10" | EARTH                                        |                   |                                 |     |                              |  |  |
|                                                                                                                                                                                                             | Comments: Description=Europa<br>Extended=YES                                                                      |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   |                                 |     |                              |  |  |
| Exposures                                                                                                                                                                                                   | #                                                                                                                 | Label         | Target            | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                          | Special Reqs.                                | Groups            | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |  |
|                                                                                                                                                                                                             | 1                                                                                                                 | Acquisition   | (3) EUROPA-EGRESS | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=23;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                   | GS ACQ SCENARIO BASE1BE                      |                   | 0.3 Secs (0.3 Secs)             |     |                              |  |  |
|                                                                                                                                                                                                             |                                                                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   | [>=>]                           |     | [1]                          |  |  |
|                                                                                                                                                                                                             | 2                                                                                                                 |               | (3) EUROPA-EGRESS | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                   | POS TARG null,-5;<br>GS ACQ SCENARIO BASE1BE |                   | 1798 Secs (2012 Secs)           |     |                              |  |  |
|                                                                                                                                                                                                             |                                                                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              |                   | [>=>2012.0 Secs ]               |     | [1]                          |  |  |
|                                                                                                                                                                                                             | 3                                                                                                                 |               | (3) EUROPA-EGRESS | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                   | SAME POS AS 2                                |                   | 2800 Secs (2803 Secs)           |     |                              |  |  |
|                                                                                                                                                                                                             |                                                                                                                   |               |                   |                               |                 |                                                                                                                                                                                                                                                                       |                                              | [>=>2803.0 Secs ] |                                 | [2] |                              |  |  |

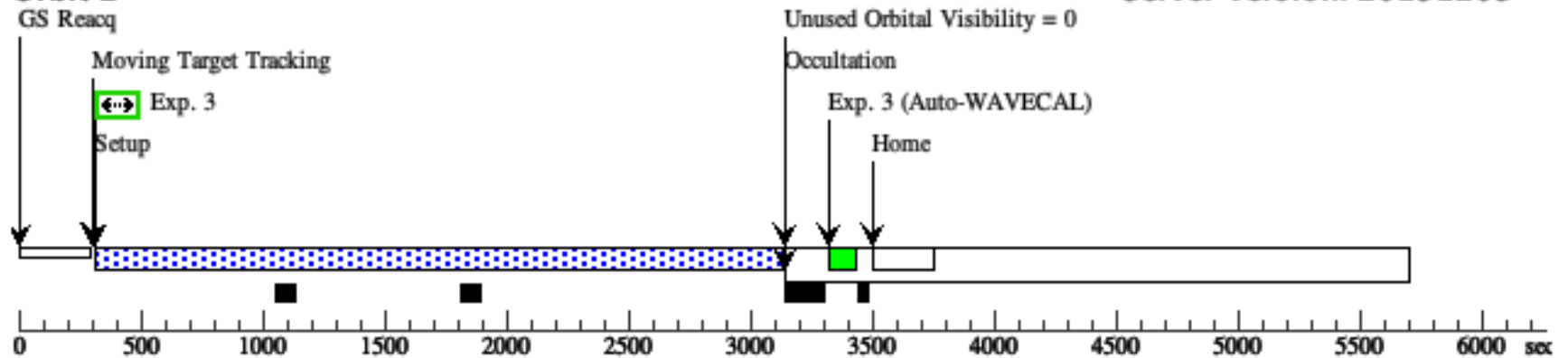
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203



# Proposal 15419 - GYRO BIAS UPDATE (6B) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitabi...

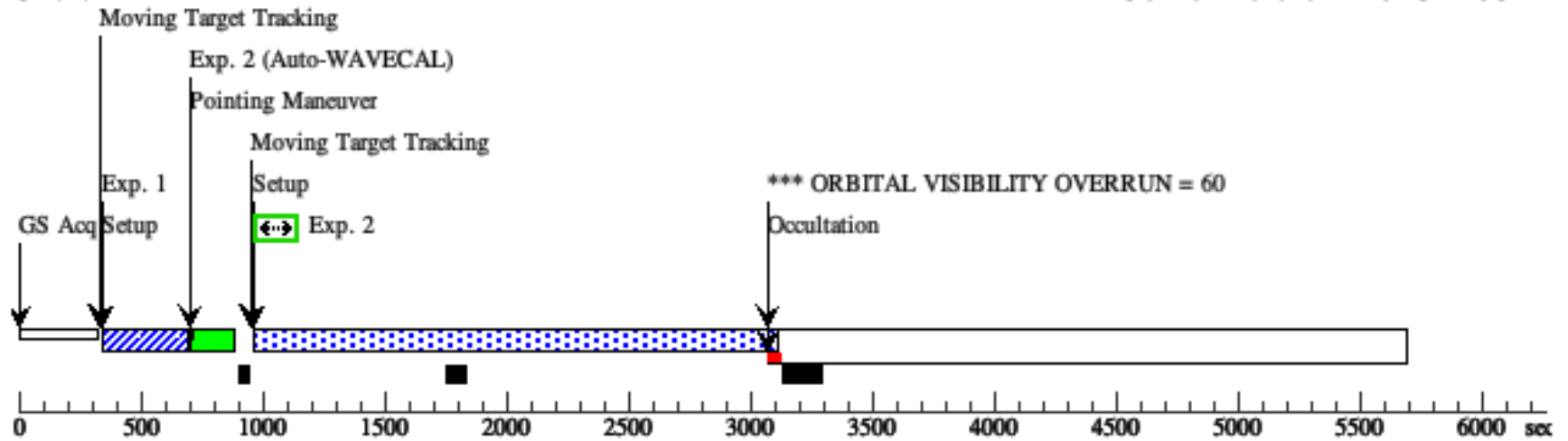
|                                                                     |                                                  |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |
|---------------------------------------------------------------------|--------------------------------------------------|---------------|-----------------------|----------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------|---------------------------------|-------|------------------------------|--------------------------|
| Visit                                                               | Proposal 15419, GYRO BIAS UPDATE (6B), completed |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       | Wed Feb 12 17:01:44 GMT 2020 |                          |
|                                                                     | Diagnostic Status: No Diagnostics                |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |
|                                                                     | Scientific Instruments: S/C                      |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |
|                                                                     | Special Requirements: NOTRACK                    |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |
| Comments: This visit is to be scheduled right after visit 15419 06. |                                                  |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |
| Solar System Targets                                                | #                                                | Name          | Level 1               | Level 2              | Level 3       | Window                                                                                                                                                                                                                                                                | Ephem Center                     |        |                                 |       |                              |                          |
|                                                                     | (3)                                              | EUROPA-EGRESS | STD=JUPITER           | STD=EUROPA           |               | NOT OCC OF EUROPA-EGRESS<br>BY JUPITER FROM EARTH,<br>SEP OF EUROPA-EGRESS JUPITER<br>FROM EARTH GT 2",<br>SEP OF EUROPA-EGRESS<br>CALLISTO FROM EARTH GT 10",<br>SEP OF EUROPA-EGRESS IO<br>FROM EARTH GT 10",<br>SEP OF EUROPA-EGRESS<br>GANYMEDE FROM EARTH GT 10" | EARTH                            |        |                                 |       |                              |                          |
| Comments: Description=Europa<br>Extended=YES                        |                                                  |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |
| Exposures                                                           | #                                                | Label         | Target                | Config,Mode,Aperture | Spectral Els. | Opt. Params.                                                                                                                                                                                                                                                          | Special Reqs.                    | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |                          |
|                                                                     | 1                                                |               | (3) EUROPA-EGRE<br>SS | S/C, POINTING, V1    |               |                                                                                                                                                                                                                                                                       | POS TARG -213.63<br>41,-224.7897 |        | 360 Secs (360 Secs)<br>[>=>]    |       | [1]                          |                          |
| Orbit Structure                                                     | Orbit 1                                          |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              | Server Version: 20191203 |
|                                                                     |                                                  |               |                       |                      |               |                                                                                                                                                                                                                                                                       |                                  |        |                                 |       |                              |                          |

# Proposal 15419 - FUV Europa-around-transit 1 (07) - Abundance, composition, and variability of Europa's plumes: Pathfinding future h...

|                                              |                                                                                                                             |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------|-------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|--------------------------------------------|--|------------------------------|--|
| Visit                                        | Proposal 15419, FUV Europa-around-transit 1 (07), completed                                                                 |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  | Wed Feb 12 17:01:44 GMT 2020 |  |
|                                              | Diagnostic Status: Warning                                                                                                  |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                             |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | Special Requirements: SCHED 50%; BETWEEN 06-APR-2018:00:00:00 AND 08-JUN-2018:00:00:00                                      |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
| Diagnostics                                  | (FUV Europa-around-transit 1 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | (FUV Europa-around-transit 1 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | (FUV Europa-around-transit 1 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | (FUV Europa-around-transit 1 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | (Exposure 2 (FUV Europa-around-transit 1 (07))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | (Exposure 3 (FUV Europa-around-transit 1 (07))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | (Exposure 4 (FUV Europa-around-transit 1 (07))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
| Solar System Targets                         | (Exposure 5 (FUV Europa-around-transit 1 (07))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
|                                              | #                                                                                                                           | Name                  | Level 1                   | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                 | Ephem Center            |        |                                            |  |                              |  |
|                                              | (4)                                                                                                                         | EUROPA-AROUND-TRANSIT | STD=JUPITER               | STD=EUROPA                    |                 | NOT OCC OF EUROPA-AROUND-TRANSIT BY JUPITER FROM EARTH, SEP OF EUROPA-AROUND-TRANSIT CALLISTO FROM EARTH GT 5", SEP OF EUROPA-AROUND-TRANSIT IO FROM EARTH GT 5", SEP OF EUROPA-AROUND-TRANSIT GANYMEDE FROM EARTH GT 5", OLG OF EUROPA-AROUND-TRANSIT BETWEEN 160 200 | EARTH                   |        |                                            |  |                              |  |
| Comments: Description=Europa<br>Extended=YES |                                                                                                                             |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |
| Exposures                                    | #                                                                                                                           | Label                 | Target                    | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                           | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.]            |  | Orbit                        |  |
|                                              | 1                                                                                                                           | Acquisition           | (4) EUROPA-AROUND-TRANSIT | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                          | GS ACQ SCENARIO BASE1B3 |        | 0.3 Secs (0.3 Secs)<br>[==>]               |  | [1]                          |  |
|                                              | 2                                                                                                                           |                       | (4) EUROPA-AROUND-TRANSIT | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                    | POS TARG null,-4.0      |        | 2200 Secs (2101 Secs)<br>[==>2101.0 Secs ] |  | [1]                          |  |
|                                              | 3                                                                                                                           |                       | (4) EUROPA-AROUND-TRANSIT | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                    | SAME POS AS 2           |        | 2800 Secs (2878 Secs)<br>[==>2878.0 Secs ] |  | [2]                          |  |
|                                              | 4                                                                                                                           |                       | (4) EUROPA-AROUND-TRANSIT | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                    | SAME POS AS 2           |        | 2800 Secs (2838 Secs)<br>[==>2838.0 Secs ] |  | [3]                          |  |
|                                              | 5                                                                                                                           |                       | (4) EUROPA-AROUND-TRANSIT | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                    | SAME POS AS 2           |        | 2800 Secs (2838 Secs)<br>[==>2838.0 Secs ] |  | [4]                          |  |
|                                              |                                                                                                                             |                       |                           |                               |                 |                                                                                                                                                                                                                                                                        |                         |        |                                            |  |                              |  |

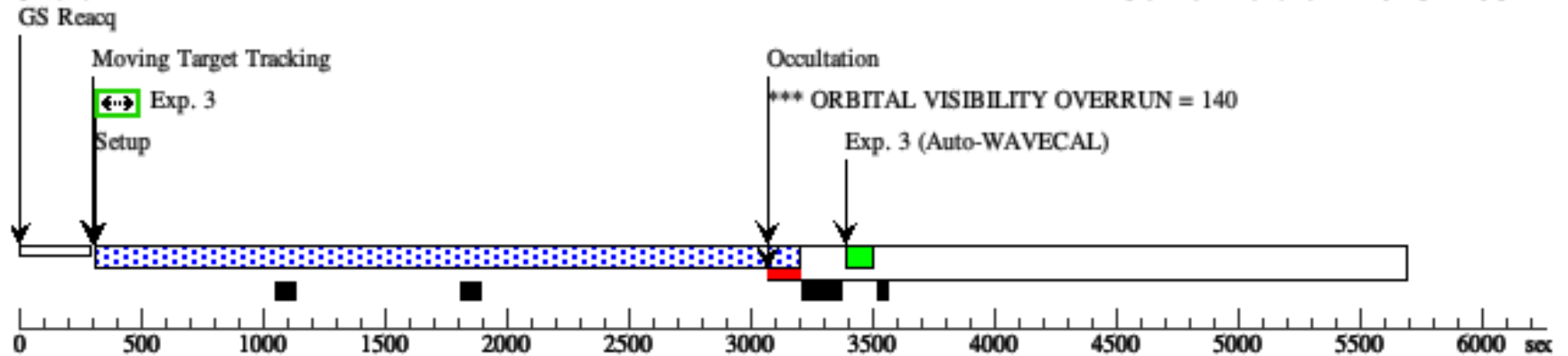
### Orbit 1

Server Version: 20191203



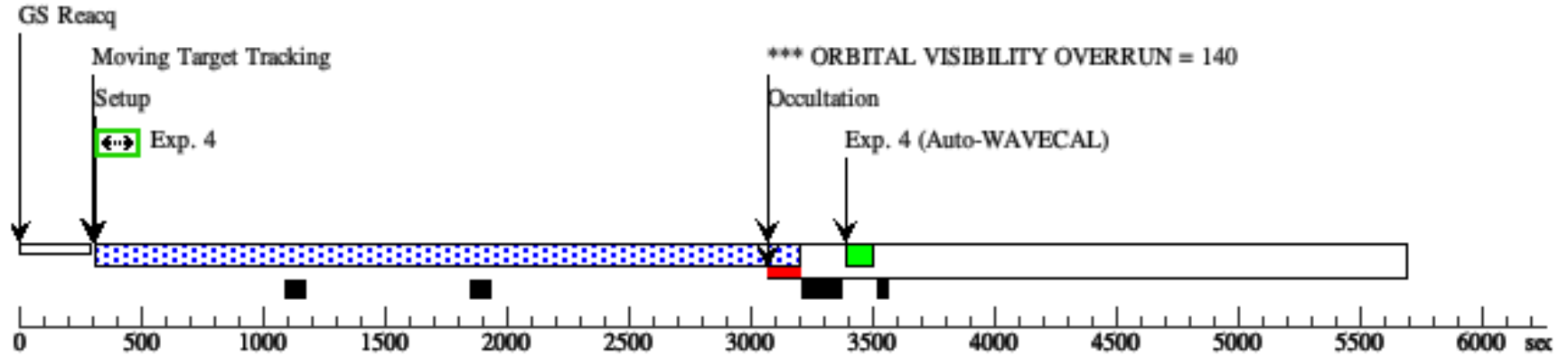
### Orbit 2

Server Version: 20191203



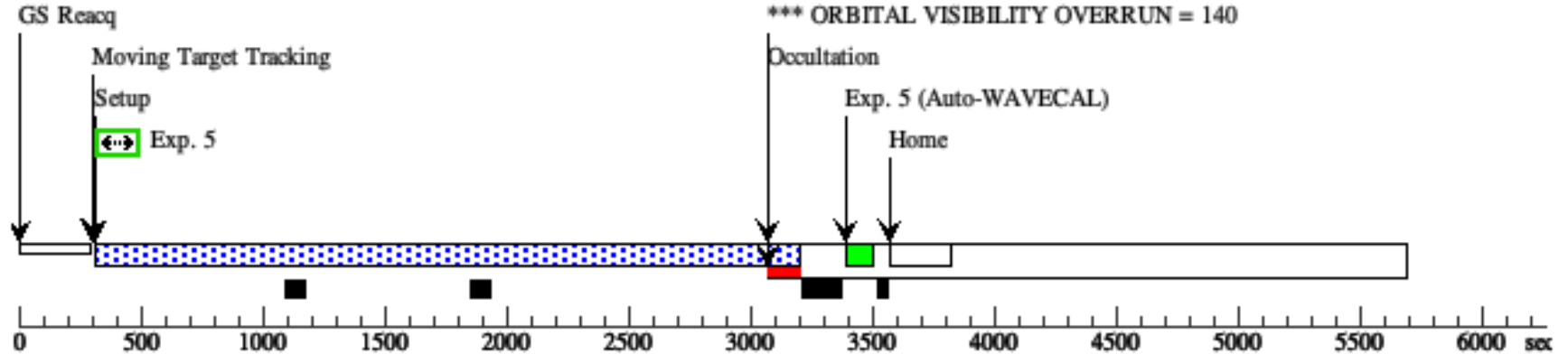
### Orbit 3

Server Version: 20191203



### Orbit 4

Server Version: 20191203

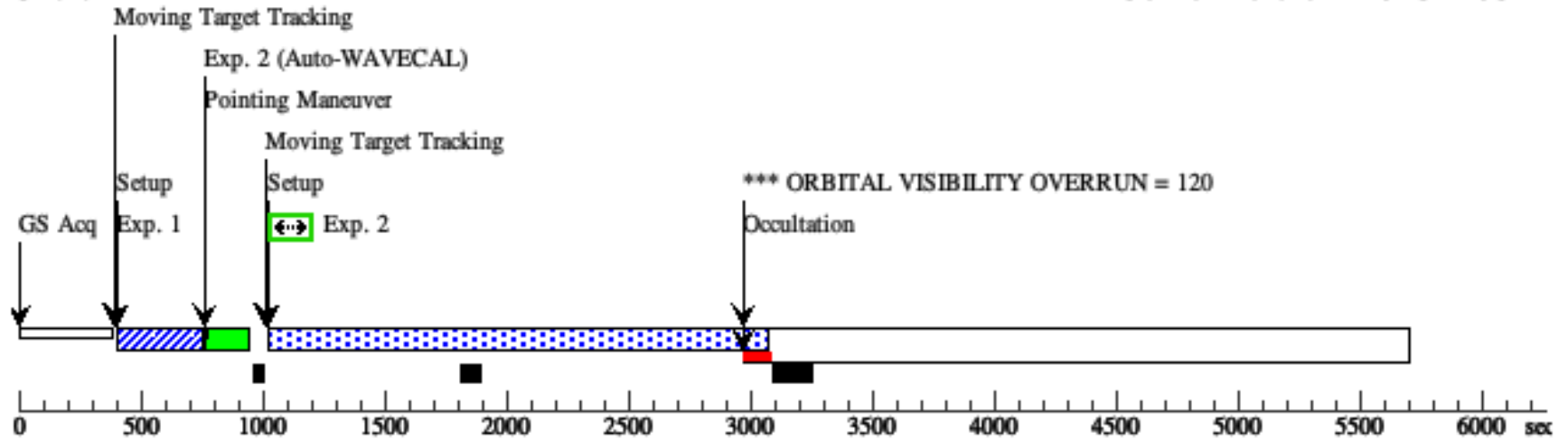


# Proposal 15419 - FUV Europa-East 1 (08) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability...

|                              |                                                                                                                   |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------|--------------------------------------------|--|------------------------------|
| Visit                        | Proposal 15419, FUV Europa-East 1 (08), completed                                                                 |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  | Wed Feb 12 17:01:44 GMT 2020 |
|                              | Diagnostic Status: Warning                                                                                        |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | Special Requirements: SCHED 80%; BETWEEN 09-APR-2018:00:00:00 AND 08-JUN-2018:00:00:00                            |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
| Diagnostics                  | (FUV Europa-East 1 (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | (FUV Europa-East 1 (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | (FUV Europa-East 1 (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | (FUV Europa-East 1 (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | (Exposure 2 (FUV Europa-East 1 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | (Exposure 3 (FUV Europa-East 1 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | (Exposure 4 (FUV Europa-East 1 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
| Solar System Targets         | (Exposure 5 (FUV Europa-East 1 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
|                              | #                                                                                                                 | Name        | Level 1         | Level 2                       | Level 3         | Window                                                                                                                                                                                                                 | Ephem Center     |        |                                            |  |                              |
|                              | (1)                                                                                                               | EUROPA-EAST | STD=JUPITER     | STD=EUROPA                    |                 | NOT OCC OF EUROPA-EAST BY JUPITER FROM EARTH, SEP OF EUROPA-EAST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST IO FROM EARTH GT 10", SEP OF EUROPA-EAST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH            |        |                                            |  |                              |
| Comments: Description=Europa |                                                                                                                   |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |
| Exposures                    | #                                                                                                                 | Label       | Target          | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                           | Special Reqs.    | Groups | Exp. Time (Total)/[Actual Dur.]            |  | Orbit                        |
|                              | 1                                                                                                                 | Acquisition | (1) EUROPA-EAST | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=19;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                    |                  |        | 0.3 Secs (0.3 Secs)<br>[==>]               |  | [1]                          |
|                              | 2                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                        | POS TARG null,-5 |        | 2200 Secs (1997 Secs)<br>[==>1997.0 Secs ] |  | [1]                          |
|                              | 3                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                        | SAME POS AS 2    |        | 2800 Secs (2774 Secs)<br>[==>2774.0 Secs ] |  | [2]                          |
|                              | 4                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                        | SAME POS AS 2    |        | 2800 Secs (2734 Secs)<br>[==>2734.0 Secs ] |  | [3]                          |
|                              | 5                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                        | SAME POS AS 2    |        | 2800 Secs (2734 Secs)<br>[==>2734.0 Secs ] |  | [4]                          |
|                              |                                                                                                                   |             |                 |                               |                 |                                                                                                                                                                                                                        |                  |        |                                            |  |                              |

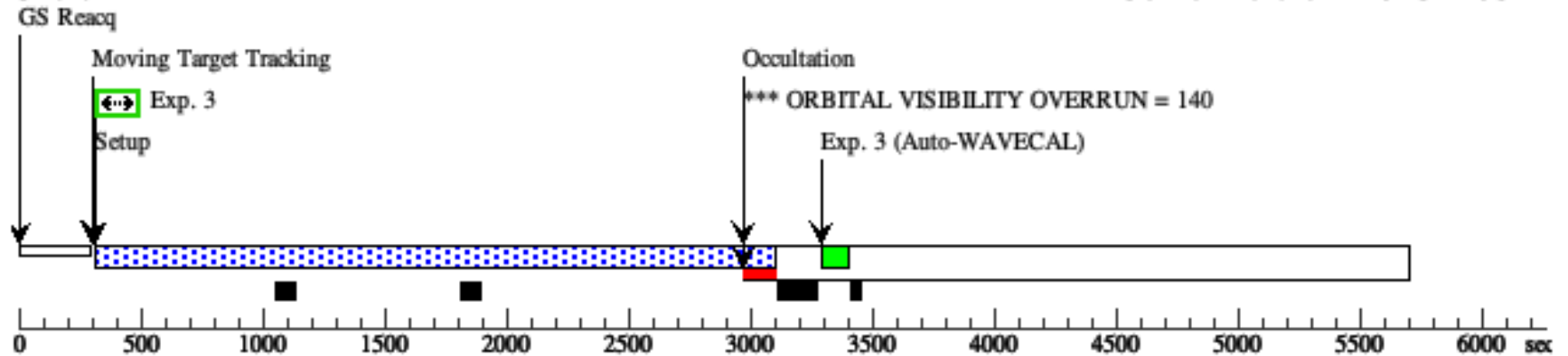
### Orbit 1

Server Version: 20191203



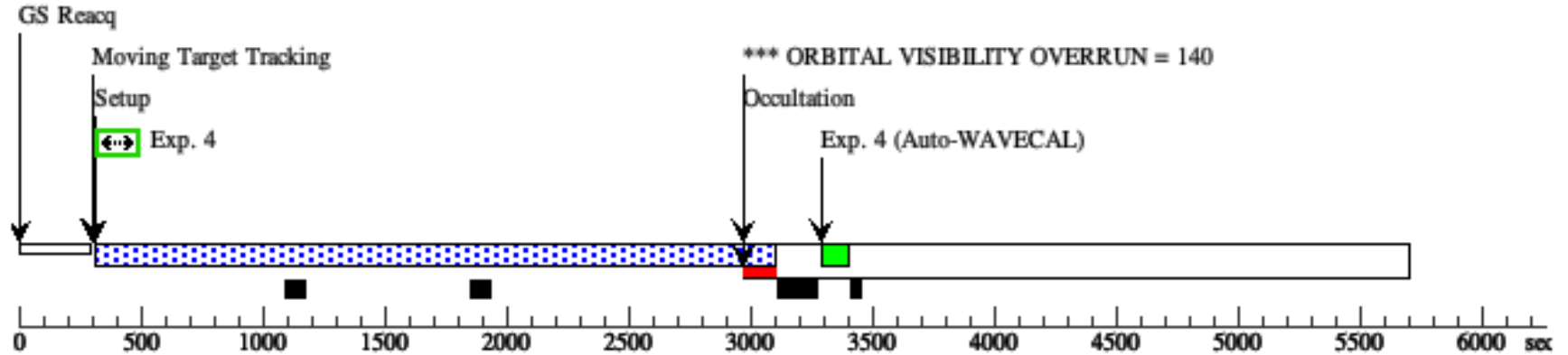
### Orbit 2

Server Version: 20191203



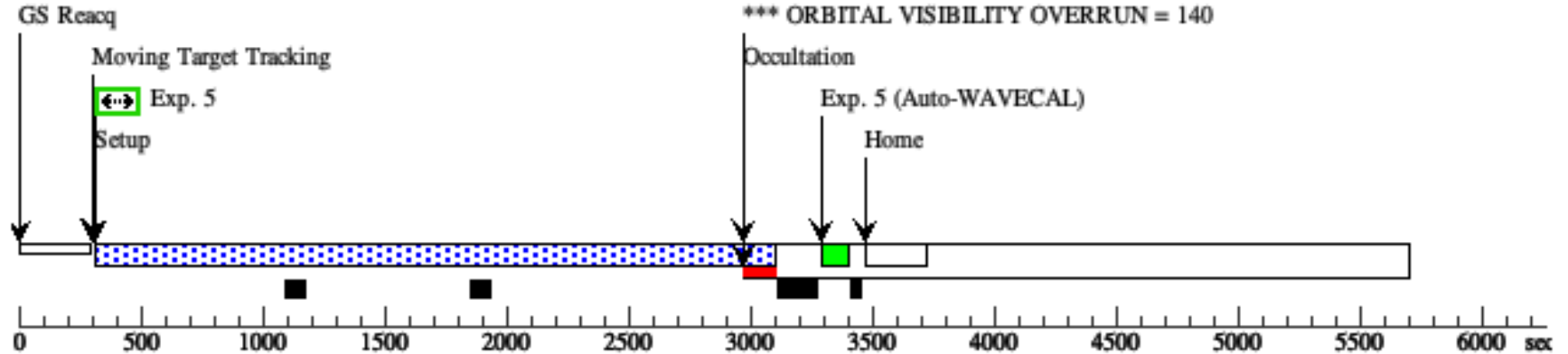
### Orbit 3

Server Version: 20191203



### Orbit 4

Server Version: 20191203

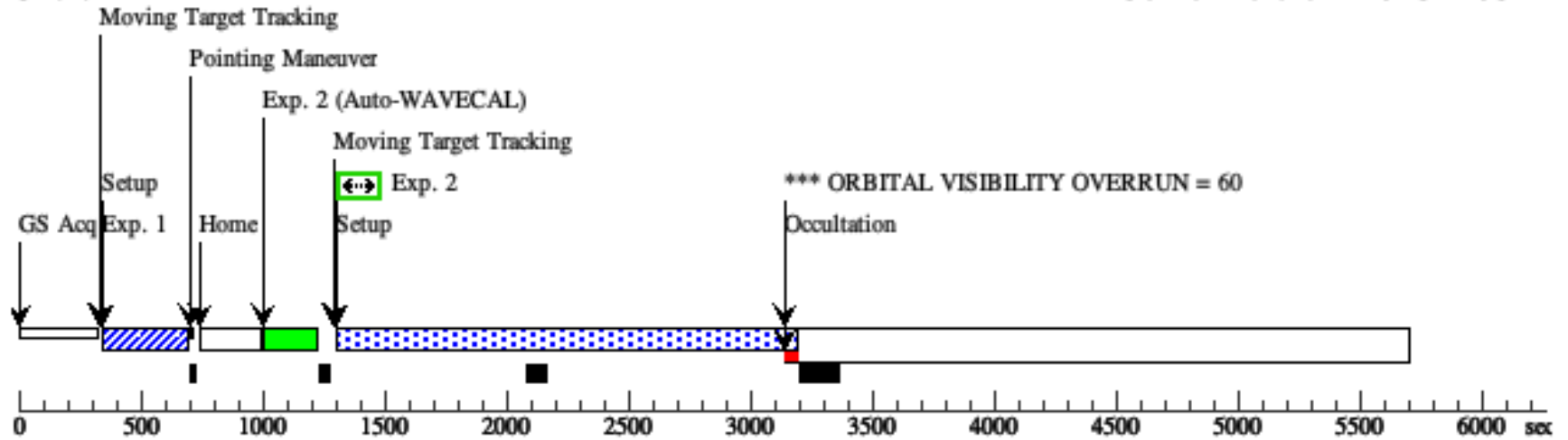


# Proposal 15419 - FUV Europa-around-transit 2 (09) - Abundance, composition, and variability of Europa's plumes: Pathfinding future h...

|                                                                                                                                                                                                  |                                                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------|-------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------|-------------------------------------------|-------|------------------------------|
| Visit                                                                                                                                                                                            | Proposal 15419, FUV Europa-around-transit 2 (09), completed                                                                      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       | Wed Feb 12 17:01:44 GMT 2020 |
|                                                                                                                                                                                                  | Diagnostic Status: Warning                                                                                                       |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                                                                                                                  | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                                                                                                                  | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 15-JUN-2018:00:00:00                                                      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Comments: Visit 9 was a 4 orbit visit. Due to gyro bias issues it was split into 2 two orbit visits separated by 1 orbit. Visit 9 now contains the first two orbits. Second two are in visit 9A. |                                                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Diagnostics                                                                                                                                                                                      | (FUV Europa-around-transit 2 (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                           |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                                                                                                                  | (FUV Europa-around-transit 2 (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                           |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                                                                                                                  | (Exposure 2 (FUV Europa-around-transit 2 (09))) Warning (Form): Sensitive exposures should have an ETC run number provided.      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                                                                                                                  | (Exposure 3 (FUV Europa-around-transit 2 (09))) Warning (Form): Sensitive exposures should have an ETC run number provided.      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Solar System Targets                                                                                                                                                                             | #                                                                                                                                | Name                   | Level 1                     | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                                | Ephem Center                                   |        |                                           |       |                              |
|                                                                                                                                                                                                  | (10)                                                                                                                             | EUROPA-AROUND-TRANSIT2 | STD=JUPITER                 | STD=EUROPA                    |                 | NOT OCC OF EUROPA-AROUND-TRANSIT BY JUPITER FROM EARTH,<br>SEP OF EUROPA-AROUND-TRANSIT2 CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-AROUND-TRANSIT2 IO FROM EARTH GT 5",<br>SEP OF EUROPA-AROUND-TRANSIT2 GANYMEDE FROM EARTH GT 5",<br>OLG OF EUROPA-AROUND-TRANSIT BETWEEN 159 200 | EARTH                                          |        |                                           |       |                              |
|                                                                                                                                                                                                  | Comments: Duplicated of target 4. OLG opened up by a degree to allow visit 18 to schedule.<br>Description=Europa<br>Extended=YES |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                                                                                                                  | (11)                                                                                                                             | IO-ACQ2                | STD=JUPITER                 | STD=IO                        |                 | NOT OCC OF IO-ACQ2 BY JUPITER FROM EARTH,<br>SEP OF IO-ACQ2 EUROPA FROM EARTH GT 10",<br>SEP OF IO-ACQ2 GANYMEDE FROM EARTH GT 10",<br>SEP OF IO-ACQ2 CALLISTO FROM EARTH GT 10"                                                                                                      | EARTH                                          |        |                                           |       |                              |
| Comments: Description=IO<br>Extended=YES                                                                                                                                                         |                                                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Exposures                                                                                                                                                                                        | #                                                                                                                                | Label                  | Target                      | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                                          | Special Reqs.                                  | Groups | Exp. Time (Total)/[Actual Dur.]           | Orbit |                              |
|                                                                                                                                                                                                  | 1                                                                                                                                | Acquisition            | (11) IO-ACQ2                | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=19;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                                   | GS ACQ SCENARIO BASE1B3                        |        | 0.3 Secs (0.3 Secs)<br>[==>]              |       | [1]                          |
|                                                                                                                                                                                                  | 2                                                                                                                                |                        | (10) EUROPA-AROUND-TRANSIT2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                                                                                       | POS TARG null,-4.0;<br>GS ACQ SCENARIO BASE1B3 |        | 1832 Secs (1832 Secs)<br>[==>]            |       | [1]                          |
|                                                                                                                                                                                                  | 3                                                                                                                                |                        | (10) EUROPA-AROUND-TRANSIT2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                                                                                       | SAME POS AS 2                                  |        | 2800 Secs (2943 Secs)<br>[==>2943.0 Secs] |       | [2]                          |

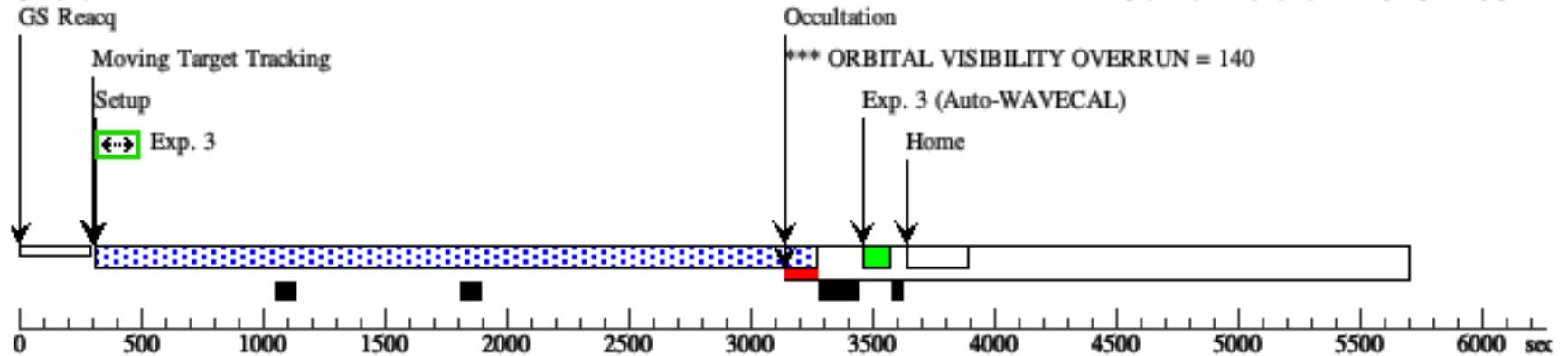
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

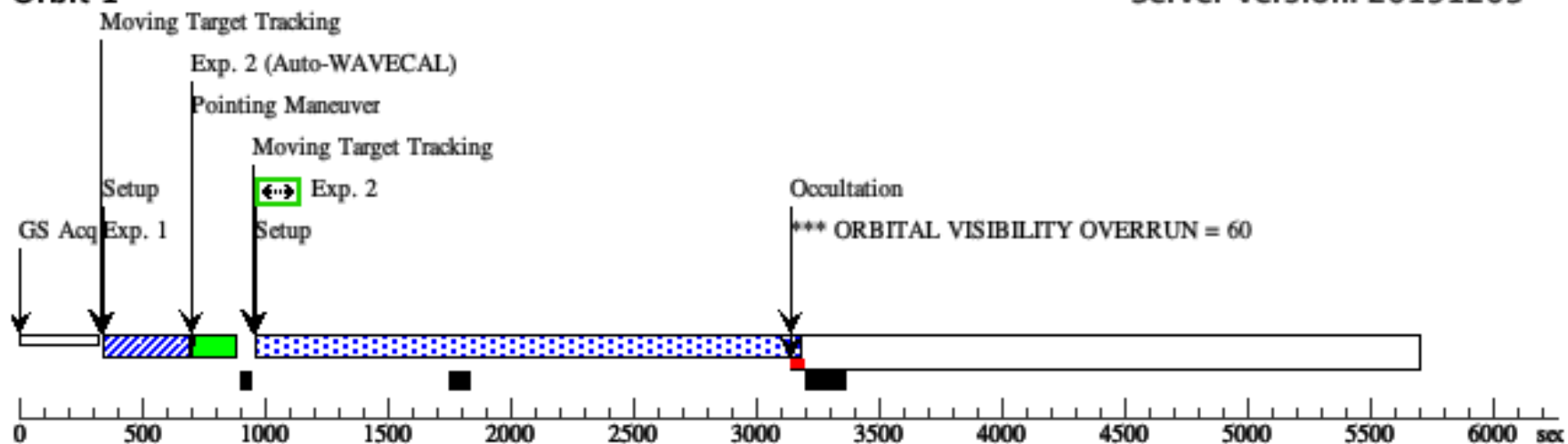


# Proposal 15419 - FUV Europa-around-transit 2 (9A) - Abundance, composition, and variability of Europa's plumes: Pathfinding future ...

|                                                                                                                                                                                                                   |                                                                                                                             |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------|-------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|---------------------------------|-----|------------------------------|--|
| Visit                                                                                                                                                                                                             | Proposal 15419, FUV Europa-around-transit 2 (9A), completed                                                                 |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                                                                                                                                                                                                   | Diagnostic Status: Warning                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                             |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 15-JUN-2018:00:00:00                                                 |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
| Comments: Visit 9 was a 4 orbit visit. Due to gyro bias issues it was split into 2 two orbit visits separated by 1 orbit. Visit 1A now contains the second pair of orbits. Visit 9 contains the first two orbits. |                                                                                                                             |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
| Diagnostics                                                                                                                                                                                                       | (FUV Europa-around-transit 2 (9A)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | (FUV Europa-around-transit 2 (9A)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | (Exposure 2 (FUV Europa-around-transit 2 (9A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | (Exposure 3 (FUV Europa-around-transit 2 (9A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
| Solar System Targets                                                                                                                                                                                              | #                                                                                                                           | Name                   | Level 1                     | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                                | Ephem Center            |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | (12)                                                                                                                        | EUROPA-AROUND-TRANSIT3 | STD=JUPITER                 | STD=EUROPA                    |                 | NOT OCC OF EUROPA-AROUND-TRANSIT BY JUPITER FROM EARTH,<br>SEP OF EUROPA-AROUND-TRANSIT3 CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-AROUND-TRANSIT3 IO FROM EARTH GT 5",<br>SEP OF EUROPA-AROUND-TRANSIT3 GANYMEDE FROM EARTH GT 5",<br>OLG OF EUROPA-AROUND-TRANSIT BETWEEN 159 205 | EARTH                   |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | Comments: Duplicated of target 4. OLG opened up by a degree to allow visit 18 to schedule.                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
|                                                                                                                                                                                                                   | Description=Europa<br>Extended=YES                                                                                          |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  |                                 |     |                              |  |
| Exposures                                                                                                                                                                                                         | #                                                                                                                           | Label                  | Target                      | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                                          | Special Reqs.           | Groups           | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|                                                                                                                                                                                                                   | 1                                                                                                                           | Acquisition            | (12) EUROPA-AROUND-TRANSIT3 | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=19;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                                   | GS ACQ SCENARIO BASE1B3 |                  | 0.3 Secs (0.3 Secs)             |     |                              |  |
|                                                                                                                                                                                                                   |                                                                                                                             |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  | [>=>]                           |     | [1]                          |  |
|                                                                                                                                                                                                                   | 2                                                                                                                           |                        | (12) EUROPA-AROUND-TRANSIT3 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                                   | POS TARG null,-4.0      |                  | 2200 Secs (2166 Secs)           |     |                              |  |
|                                                                                                                                                                                                                   |                                                                                                                             |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         |                  | [>=>2166.0 Secs]                |     | [1]                          |  |
|                                                                                                                                                                                                                   | 3                                                                                                                           |                        | (12) EUROPA-AROUND-TRANSIT3 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=75<br>0                                                                                                                                                                                                                                                                   | SAME POS AS 2           |                  | 2800 Secs (2943 Secs)           |     |                              |  |
|                                                                                                                                                                                                                   |                                                                                                                             |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                         | [>=>2943.0 Secs] |                                 | [2] |                              |  |

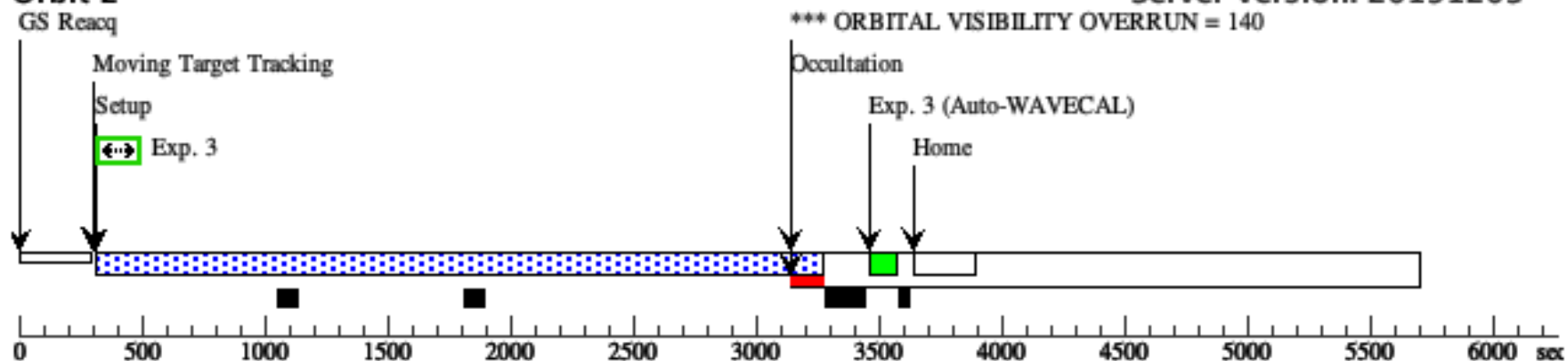
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

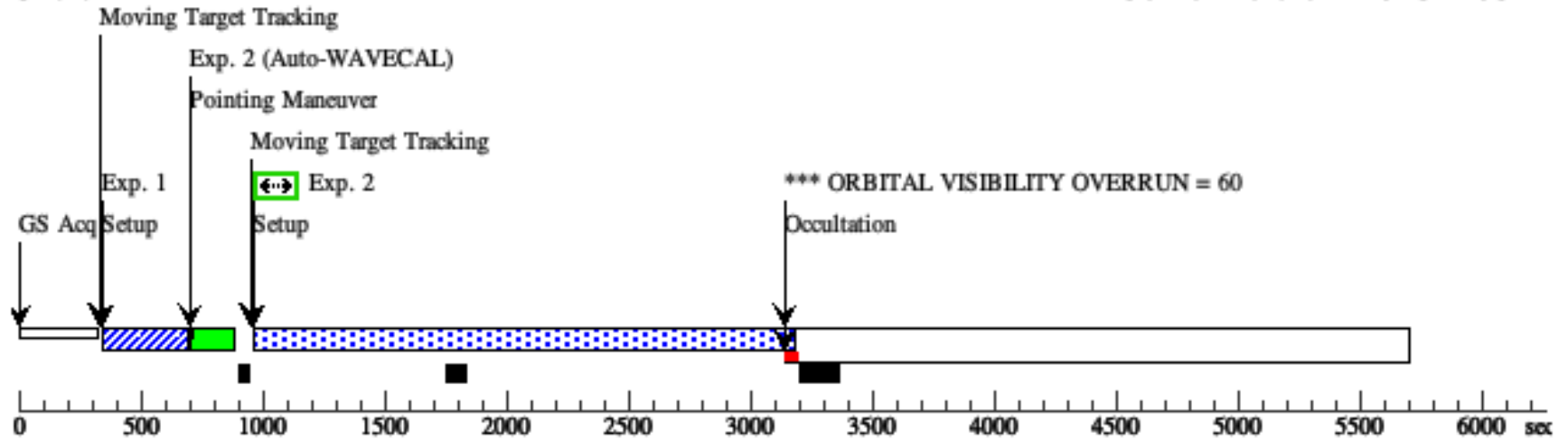


# Proposal 15419 - FUV Europa-West (10) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability i...

|                                                                                                                                                                                                    |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|-------------------------------------------|--|------------------------------|--|
| Visit                                                                                                                                                                                              | Proposal 15419, FUV Europa-West (10), completed                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                                                                                                                                                                                    | Diagnostic Status: Warning                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 08-JUN-2018:00:00:00                                     |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
| Comments: Visit 10 was a 4 orbit visit. Due to gyro bias issues it was split into 2 two orbit visits separated by 1 orbit. Visit 10 now contains the first two orbits. Second two are in visit 23. |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
| Diagnostics                                                                                                                                                                                        | (FUV Europa-West (10)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | (FUV Europa-West (10)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | (Exposure 2 (FUV Europa-West (10))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | (Exposure 3 (FUV Europa-West (10))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
| Solar System Targets                                                                                                                                                                               | #                                                                                                               | Name        | Level 1         | Level 2                       | Level 3       | Window                                                                                                                                                                                                             | Ephem Center            |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | (2)                                                                                                             | EUROPA-WEST | STD=JUPITER     | STD=EUROPA                    |               | NOT OCC OF EUROPA-WEST BY JUPITER FROM EARTH, SEP OF EUROPA-WEST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-WEST IO FROM EARTH GT 10", SEP OF EUROPA-WEST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA BETWEEN 250 290 | EARTH                   |        |                                           |  |                              |  |
|                                                                                                                                                                                                    | Comments: Description=Europa<br>Extended=YES                                                                    |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |
| Exposures                                                                                                                                                                                          | #                                                                                                               | Label       | Target          | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                       | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.]           |  | Orbit                        |  |
|                                                                                                                                                                                                    | 1                                                                                                               | Acquisition | (2) EUROPA-WEST | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                      | GS ACQ SCENARIO BASE1B3 |        | 0.3 Secs (0.3 Secs)<br>[==>]              |  | [1]                          |  |
|                                                                                                                                                                                                    | 2                                                                                                               |             | (2) EUROPA-WEST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                   | POS TARG null,-5.0      |        | 2200 Secs (2166 Secs)<br>[==>2166.0 Secs] |  | [1]                          |  |
|                                                                                                                                                                                                    | 3                                                                                                               |             | (2) EUROPA-WEST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                   | SAME POS AS 2           |        | 2800 Secs (2943 Secs)<br>[==>2943.0 Secs] |  | [2]                          |  |
|                                                                                                                                                                                                    |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                           |  |                              |  |

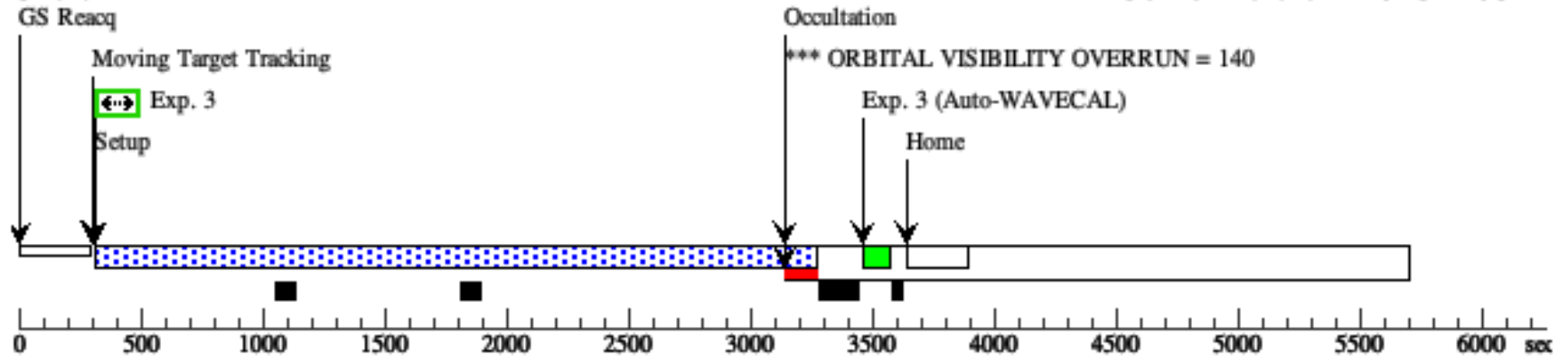
### Orbit 1

Server Version: 20191203



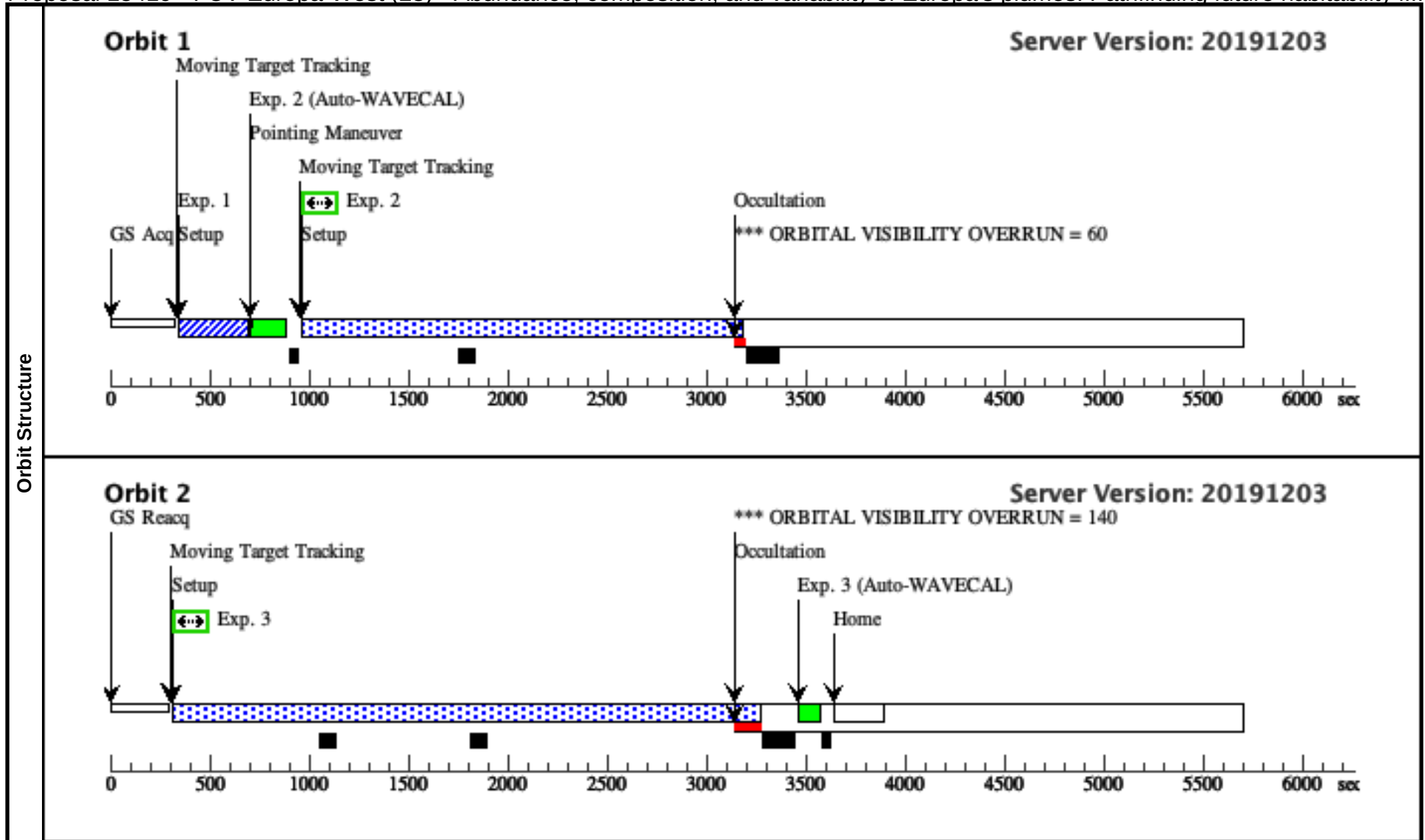
### Orbit 2

Server Version: 20191203



# Proposal 15419 - FUV Europa-West (23) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability i...

|                                                                                                                                                                                                                     |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit                                                                                                                                                                                                               | Proposal 15419, FUV Europa-West (23), completed                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                                                                                                                                                                                                     | Diagnostic Status: Warning                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
|                                                                                                                                                                                                                     | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
|                                                                                                                                                                                                                     | Special Requirements: SAME ORIENT AS 10; BETWEEN 09-APR-2018:00:00:00 AND 08-JUN-2018:00:00:00                  |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
| Comments: Visit 10 was a 4 orbit visit. Due to gyro bias issues it was split into 2 two orbit visits separated by 1 orbit. Visit 23 now contains the second pair of orbits. Visit 10 contains the first two orbits. |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
| Diagnostics                                                                                                                                                                                                         | (FUV Europa-West (23)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
|                                                                                                                                                                                                                     | (FUV Europa-West (23)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
|                                                                                                                                                                                                                     | (Exposure 2 (FUV Europa-West (23))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
|                                                                                                                                                                                                                     | (Exposure 3 (FUV Europa-West (23))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
| Solar System Targets                                                                                                                                                                                                | #                                                                                                               | Name        | Level 1         | Level 2                       | Level 3       | Window                                                                                                                                                                                                             | Ephem Center            |        |                                 |  |                              |  |
|                                                                                                                                                                                                                     | (2)                                                                                                             | EUROPA-WEST | STD=JUPITER     | STD=EUROPA                    |               | NOT OCC OF EUROPA-WEST BY JUPITER FROM EARTH, SEP OF EUROPA-WEST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-WEST IO FROM EARTH GT 10", SEP OF EUROPA-WEST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA BETWEEN 250 290 | EARTH                   |        |                                 |  |                              |  |
| Comments: Description=Europa<br>Extended=YES                                                                                                                                                                        |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        |                                 |  |                              |  |
| Exposures                                                                                                                                                                                                           | #                                                                                                               | Label       | Target          | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                       | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|                                                                                                                                                                                                                     | 1                                                                                                               | Acquisition | (2) EUROPA-WEST | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                      | GS ACQ SCENARIO BASE1B3 |        | 0.3 Secs (0.3 Secs)             |  |                              |  |
|                                                                                                                                                                                                                     |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        | [==>]                           |  | [1]                          |  |
|                                                                                                                                                                                                                     | 2                                                                                                               |             | (2) EUROPA-WEST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                   | POS TARG null,-5.0      |        | 2200 Secs (2166 Secs)           |  |                              |  |
|                                                                                                                                                                                                                     |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        | [==>2166.0 Secs]                |  | [1]                          |  |
|                                                                                                                                                                                                                     | 3                                                                                                               |             | (2) EUROPA-WEST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                   | SAME POS AS 2           |        | 2800 Secs (2943 Secs)           |  |                              |  |
|                                                                                                                                                                                                                     |                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                    |                         |        | [==>2943.0 Secs]                |  | [2]                          |  |

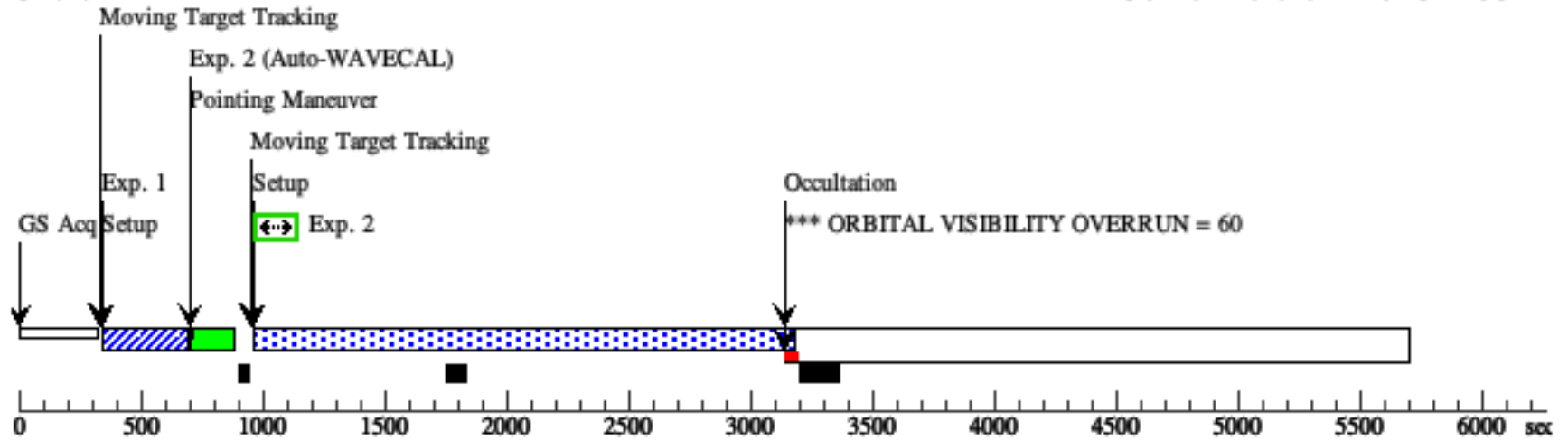


# Proposal 15419 - FUV Europa-East 2 (11) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability...

|                      |                                                                                                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|--------------------------------------------|-------|------------------------------|
| Visit                | Proposal 15419, FUV Europa-East 2 (11), completed                                                                                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       | Wed Feb 12 17:01:45 GMT 2020 |
|                      | Diagnostic Status: Warning                                                                                                                                                                        |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 14-JUN-2018:00:00:00                                                                                                                       |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      | Comments: Visit 11 was a 4 orbit visit. Due to gyro bias issues it was split into 2 two orbit visits separated by 1 orbit. Visit 11 now contains the first two orbits. Second two are in visit 1A |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
| Diagnostics          | (FUV Europa-East 2 (11)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      | (FUV Europa-East 2 (11)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      | (Exposure 2 (FUV Europa-East 2 (11))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      | (Exposure 3 (FUV Europa-East 2 (11))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                                 |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
|                      |                                                                                                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
| Solar System Targets | #                                                                                                                                                                                                 | Name        | Level 1         | Level 2                       | Level 3       | Window                                                                                                                                                                                                                 | Ephem Center            |        |                                            |       |                              |
|                      | (1)                                                                                                                                                                                               | EUROPA-EAST | STD=JUPITER     | STD=EUROPA                    |               | NOT OCC OF EUROPA-EAST BY JUPITER FROM EARTH, SEP OF EUROPA-EAST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST IO FROM EARTH GT 10", SEP OF EUROPA-EAST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH                   |        |                                            |       |                              |
|                      | Comments: Description=Europa                                                                                                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |
| Exposures            | #                                                                                                                                                                                                 | Label       | Target          | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                           | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.]            | Orbit |                              |
|                      | 1                                                                                                                                                                                                 | Acquisition | (1) EUROPA-EAST | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                          | GS ACQ SCENARIO BASE1B3 |        | 0.3 Secs (0.3 Secs)<br>[==>]               | [1]   |                              |
|                      | 2                                                                                                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                       | POS TARG null,-5.0      |        | 2200 Secs (2166 Secs)<br>[==>2166.0 Secs ] | [1]   |                              |
|                      | 3                                                                                                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                       | SAME POS AS 2           |        | 2800 Secs (2943 Secs)<br>[==>2943.0 Secs ] | [2]   |                              |
|                      |                                                                                                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                            |       |                              |

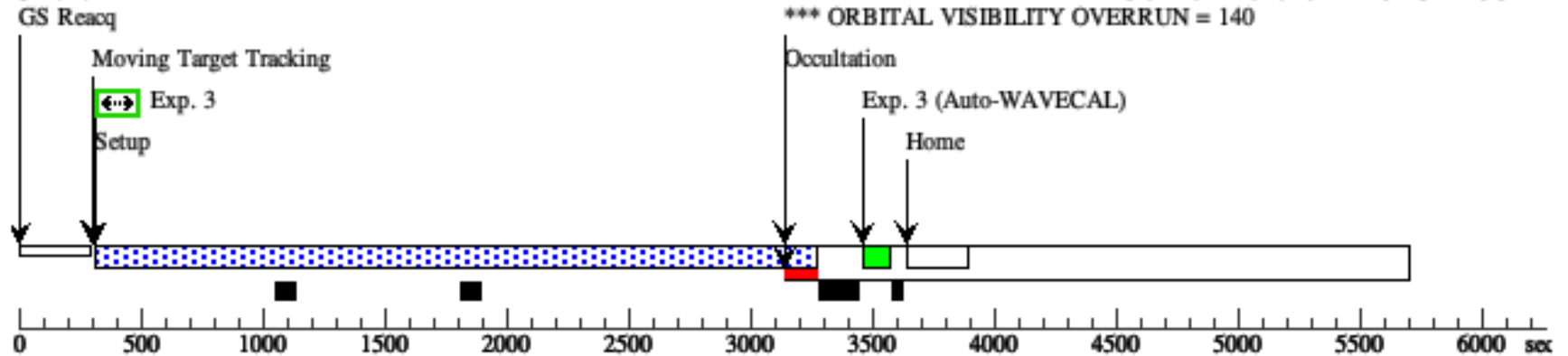
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

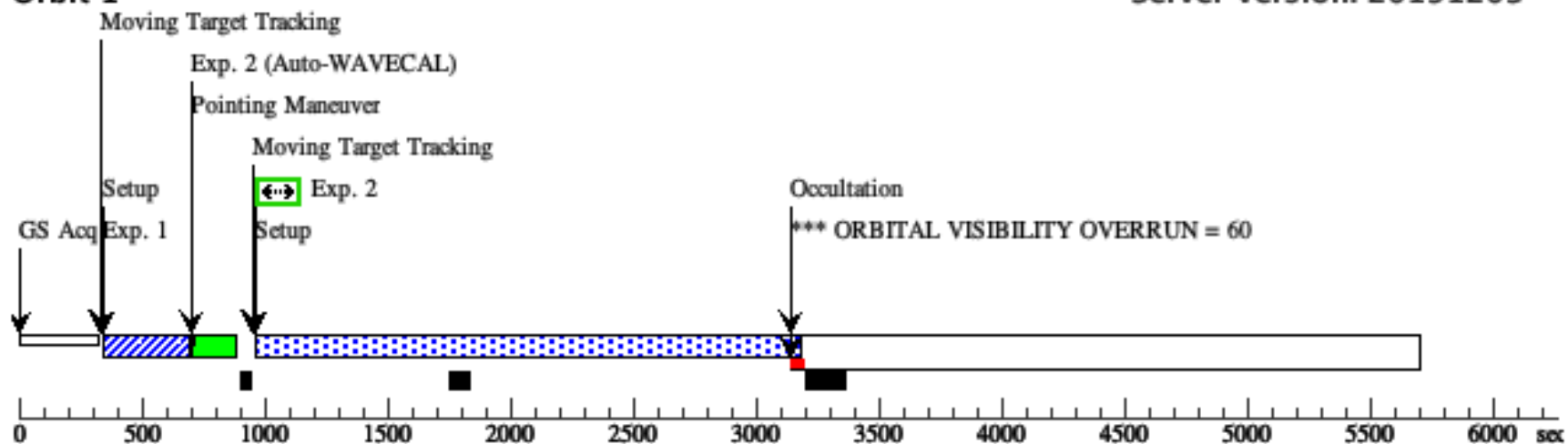


# Proposal 15419 - FUV Europa-East 2 (1A) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitabilit...

|                                                                                                                                                                                                                     |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|---------------------------------|-------|------------------------------|
| Visit                                                                                                                                                                                                               | Proposal 15419, FUV Europa-East 2 (1A), completed                                                                 |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       | Wed Feb 12 17:01:45 GMT 2020 |
|                                                                                                                                                                                                                     | Diagnostic Status: Warning                                                                                        |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
|                                                                                                                                                                                                                     | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
|                                                                                                                                                                                                                     | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 14-JUN-2018:00:00:00                                       |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
| Comments: Visit 11 was a 4 orbit visit. Due to qyro bias issues it was split into 2 two orbit visits separated by 1 orbit. Visit 1A now contains the second pair of orbits. Visit 11 contains the first two orbits. |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
| Diagnostics                                                                                                                                                                                                         | (FUV Europa-East 2 (1A)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
|                                                                                                                                                                                                                     | (FUV Europa-East 2 (1A)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
|                                                                                                                                                                                                                     | (Exposure 2 (FUV Europa-East 2 (1A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
|                                                                                                                                                                                                                     | (Exposure 3 (FUV Europa-East 2 (1A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
| Solar System Targets                                                                                                                                                                                                | #                                                                                                                 | Name        | Level 1         | Level 2                       | Level 3       | Window                                                                                                                                                                                                                 | Ephem Center            |        |                                 |       |                              |
|                                                                                                                                                                                                                     | (1)                                                                                                               | EUROPA-EAST | STD=JUPITER     | STD=EUROPA                    |               | NOT OCC OF EUROPA-EAST BY JUPITER FROM EARTH, SEP OF EUROPA-EAST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST IO FROM EARTH GT 10", SEP OF EUROPA-EAST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH                   |        |                                 |       |                              |
|                                                                                                                                                                                                                     | Comments: Description=Europa                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |       |                              |
| Exposures                                                                                                                                                                                                           | #                                                                                                                 | Label       | Target          | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                           | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                                                                                                                                                                                                                     | 1                                                                                                                 | Acquisition | (1) EUROPA-EAST | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                          | GS ACQ SCENARIO BASE1B3 |        | 0.3 Secs (0.3 Secs)             |       |                              |
|                                                                                                                                                                                                                     |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        | [==>]                           | [1]   |                              |
|                                                                                                                                                                                                                     | 2                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=750                                                                                                                                                                                                        | POS TARG null,-5.0      |        | 2200 Secs (2166 Secs)           |       |                              |
|                                                                                                                                                                                                                     |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        | [==>2166.0 Secs ]               | [1]   |                              |
|                                                                                                                                                                                                                     | 3                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=750                                                                                                                                                                                                        | SAME POS AS 2           |        | 2800 Secs (2943 Secs)           |       |                              |
|                                                                                                                                                                                                                     |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        | [==>2943.0 Secs ]               | [2]   |                              |

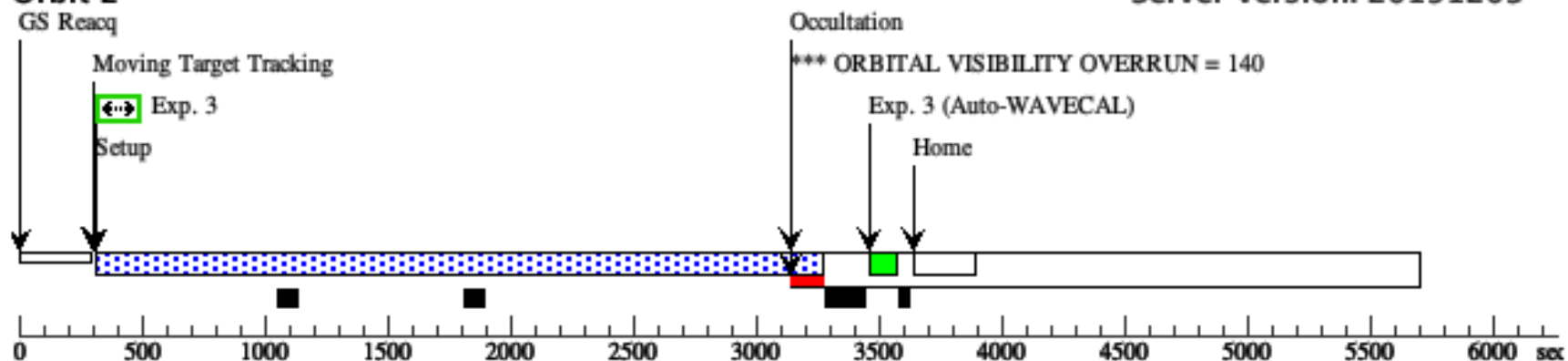
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

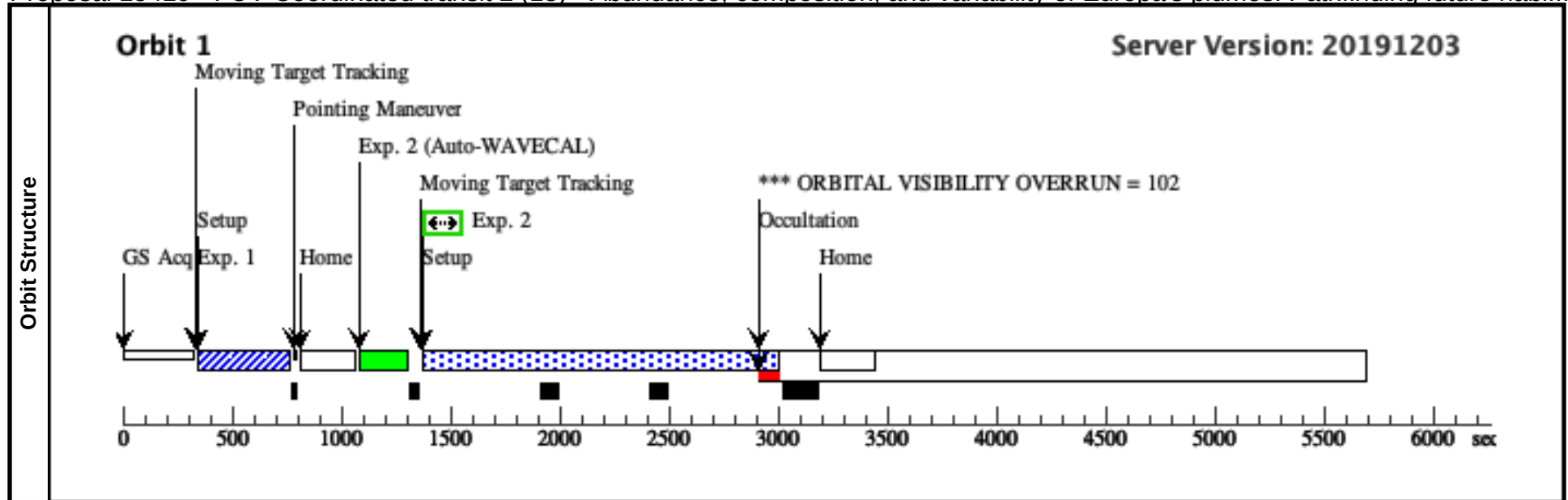


# Proposal 15419 - FUV Coordinated transit 1 (12) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habi...

|                                                                                    |                                                                                                                                                                                                                                                                                                                                              |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  |                              |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------|------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit                                                                              | Proposal 15419, FUV Coordinated transit 1 (12), completed                                                                                                                                                                                                                                                                                    |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  | Wed Feb 12 17:01:45 GMT 2020 |
|                                                                                    | Diagnostic Status: Warning<br>Scientific Instruments: STIS/FUV-MAMA<br>Special Requirements: SCHED 100%; BETWEEN 10-MAR-2018:00:00:00 AND 08-JUL-2018:00:00:00<br>Comments: For this visit, no acquisition exposure is obtained. Instead, GS pointing is used only and the unsupported 6x6 aperture to ensure Europa is well within the FOV. |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  |                              |
| Diagnostics                                                                        | (FUV Coordinated transit 1 (12)) Warning (Form): A target acquisition should probably be performed before doing spectroscopy or coronagraphy with STIS or COS.<br>(Exposure 1 (FUV Coordinated transit 1 (12))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                  |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  |                              |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                              |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  |                              |
| Solar System Targets                                                               | #                                                                                                                                                                                                                                                                                                                                            | Name            | Level 1             | Level 2                      | Level 3         | Window                                                                                                                                                                                                                                   | Ephem Center            |        |                                 |  |                              |
|                                                                                    | (9)                                                                                                                                                                                                                                                                                                                                          | EUROPA-TRANSIT2 | STD=JUPITER         | STD=EUROPA                   |                 | NOT OCC OF EUROPA-TRANSIT BY JUPITER FROM EARTH, SEP OF EUROPA-TRANSIT2 CALLISTO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT2 IO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT2 GANYMEDE FROM EARTH GT 5", CML OF JUPITER FROM EARTH BETWEEN 0 180 | EARTH                   |        |                                 |  |                              |
| Comments: This target is used with Visit 12.<br>Description=Europa<br>Extended=YES |                                                                                                                                                                                                                                                                                                                                              |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  |                              |
| Exposures                                                                          | #                                                                                                                                                                                                                                                                                                                                            | Label           | Target              | Config,Mode,Aperture         | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                             | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                    | 1                                                                                                                                                                                                                                                                                                                                            |                 | (9) EUROPA-TRANSIT2 | STIS/FUV-MAMA, TIME-TAG, 6X6 | G140L<br>1425 A | BUFFER-TIME=50<br>0                                                                                                                                                                                                                      | GS ACQ SCENARIO BASE1B3 |        | 1700 Secs (1574 Secs)           |  |                              |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                              |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        | [=>1574.0 Secs ]                |  | [1]                          |
| Orbit Structure                                                                    | <div>Orbit 1<div>Server Version: 20191203</div><div><div>Exp. 1 (Auto-WAVECAL)</div><div>Moving Target Tracking</div><div>Exp. 1</div><div>GS Acq</div><div>Setup</div><div>Unused Orbital Visibility = 652</div><div>Home</div><div>Occultation</div><div>050010001500200025003000350040004500500055006000 sec</div></div></div>            |                 |                     |                              |                 |                                                                                                                                                                                                                                          |                         |        |                                 |  |                              |

# Proposal 15419 - FUV Coordinated transit 2 (13) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habi...

|                                                                                                                                                              |                                                                                                                                                                                          |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------|-------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|---------------------------------|-------|------------------------------|--|
| Visit                                                                                                                                                        | Proposal 15419, FUV Coordinated transit 2 (13), completed                                                                                                                                |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                                                                                                                                              | Diagnostic Status: Warning                                                                                                                                                               |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
|                                                                                                                                                              | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                                                                                          |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
|                                                                                                                                                              | Special Requirements: SCHED 100%                                                                                                                                                         |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
| Diagnostics                                                                                                                                                  | (FUV Coordinated transit 2 (13)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                     |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
|                                                                                                                                                              | (Exposure 2 (FUV Coordinated transit 2 (13))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
| Solar System Targets                                                                                                                                         | #                                                                                                                                                                                        | Name                 | Level 1                       | Level 2                 | Level 3             | Window                                                                                                                                                                                                                                        | Ephem Center            |                       |                                 |       |                              |  |
|                                                                                                                                                              | (14)                                                                                                                                                                                     | GANYMEDE-ACQ         | STD=JUPITER                   | STD=GANYMEDE            |                     | NOT OCC OF GANYMEDE-ACQ BY JUPITER FROM EARTH, SEP OF GANYMEDE-ACQ IO FROM EARTH GT 10", SEP OF GANYMEDE-ACQ EUROPA FROM EARTH GT 10", SEP OF GANYMEDE-ACQ CALLISTO FROM EARTH GT 10"                                                         | EARTH                   |                       |                                 |       |                              |  |
|                                                                                                                                                              | Comments: Description=GANYMEDE<br>Extended=YES                                                                                                                                           |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
|                                                                                                                                                              | (15)                                                                                                                                                                                     | EUROPA-TRANSIT3      | STD=JUPITER                   | STD=EUROPA              |                     | NOT OCC OF EUROPA-TRANSIT3 BY JUPITER FROM EARTH, SEP OF EUROPA-TRANSIT3 IO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT3 GANYMEDE FROM EARTH GT 5", SEP OF EUROPA-TRANSIT3 CALLISTO FROM EARTH GT 5", TRANSIT OF EUROPA ACROSS JUPITER FROM EARTH | EARTH                   |                       |                                 |       |                              |  |
| Comments: Description=EUROPA<br>Extended=YES                                                                                                                 |                                                                                                                                                                                          |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
| Exposures                                                                                                                                                    | #                                                                                                                                                                                        | Label                | Target                        | Config,Mode,Aperture    | Spectral Els.       | Opt. Params.                                                                                                                                                                                                                                  | Special Reqs.           | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |  |
|                                                                                                                                                              | 1                                                                                                                                                                                        | Acquisition          | (14) GANYMEDE-ACQ             | STIS/CCD, ACQ, F28X50LP | MIRROR              | CHECKBOX=27;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                           | GS ACQ SCENARIO BASE1B3 |                       | 0.3 Secs (0.3 Secs)             |       |                              |  |
|                                                                                                                                                              |                                                                                                                                                                                          |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 | [>=>] | [1]                          |  |
|                                                                                                                                                              | Comments: This acquisition exposure can possibly be deleted/omitted, if the observation is taken directly subsequent to a Europa plume STIS FUV filter imaging orbit from program 15424. |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
| Checkbox parameter selected for size of Ganymede in the period near August 27, 2018. If period or moon is different, the checkbox size needs to be adjusted. |                                                                                                                                                                                          |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       |                                 |       |                              |  |
| 2                                                                                                                                                            |                                                                                                                                                                                          | (15) EUROPA-TRANSIT3 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A         | BUFFER-TIME=50<br>0 | POS TARG 0.0,-4.0;<br>GS ACQ SCENARIO BASE1B3                                                                                                                                                                                                 |                         | 1700 Secs (1574 Secs) |                                 |       |                              |  |
|                                                                                                                                                              |                                                                                                                                                                                          |                      |                               |                         |                     |                                                                                                                                                                                                                                               |                         |                       | [>=>1574.0 Secs ]               | [1]   |                              |  |

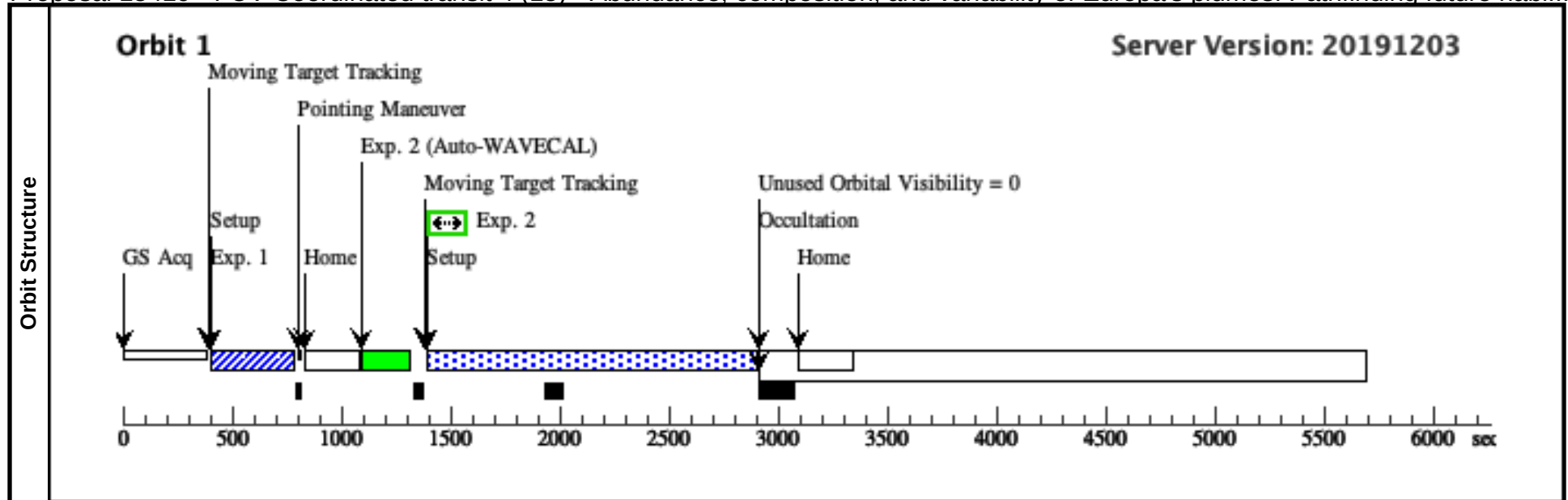


# Proposal 15419 - FUV Coordinated transit 3 (14) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habi...

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visit                | <b>Proposal 15419, FUV Coordinated transit 3 (14), completed</b> <span>Wed Feb 12 17:01:45 GMT 2020</span>                                                                                                                                                                                                                                                                                                                                                                                |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
|                      | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: STIS/FUV-MAMA<br>Special Requirements: SCHED 100%                                                                                                                                                                                                                                                                                                                                                                            |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
| Diagnostics          | (FUV Coordinated transit 3 (14)) Warning (Form): A target acquisition should probably be performed before doing spectroscopy or coronagraphy with STIS or COS.<br>(FUV Coordinated transit 3 (14)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE<br>(FUV Coordinated transit 3 (14)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT<br>(Exposure 1 (FUV Coordinated transit 3 (14))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
| Solar System Targets | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Name                 | Level 1                      | Level 2              | Level 3             | Ephem Center                                                                                                                                                                                                                                                             |
|                      | (15)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EUROPA-TRANSIT3      | STD=JUPITER                  | STD=EUROPA           |                     | NOT OCC OF EUROPA-TRANSIT3<br>BY JUPITER FROM EARTH,<br>SEP OF EUROPA-TRANSIT3 IO<br>FROM EARTH GT 5",<br>SEP OF EUROPA-TRANSIT3<br>GANYMEDE FROM EARTH GT 5",<br>SEP OF EUROPA-TRANSIT3<br>CALLISTO FROM EARTH GT 5",<br>TRANSIT OF EUROPA ACROSS<br>JUPITER FROM EARTH |
| Exposures            | Comments: Description=EUROPA<br>Extended=YES                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
|                      | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Label                | Target                       | Config,Mode,Aperture | Spectral Els.       | Opt. Params.                                                                                                                                                                                                                                                             |
|                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | (15) EUROPA-TRANSIT3 | STIS/FUV-MAMA, TIME-TAG, 6X6 | G140L<br>1425 A      | BUFFER-TIME=60<br>0 | POS TARG 0.0,-4.0;<br>GS ACQ SCENARI<br>O BASE1BE                                                                                                                                                                                                                        |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                              |                      |                     | Exp. Time (Total)/[Actual Dur.]<br>2100 Secs (2166 Secs)<br>[=>2166.0 Secs ]                                                                                                                                                                                             |
| Orbit Structure      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |
|                      | <div> <div>Orbit 1</div> <div>Server Version: 20191203</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                              |                      |                     |                                                                                                                                                                                                                                                                          |

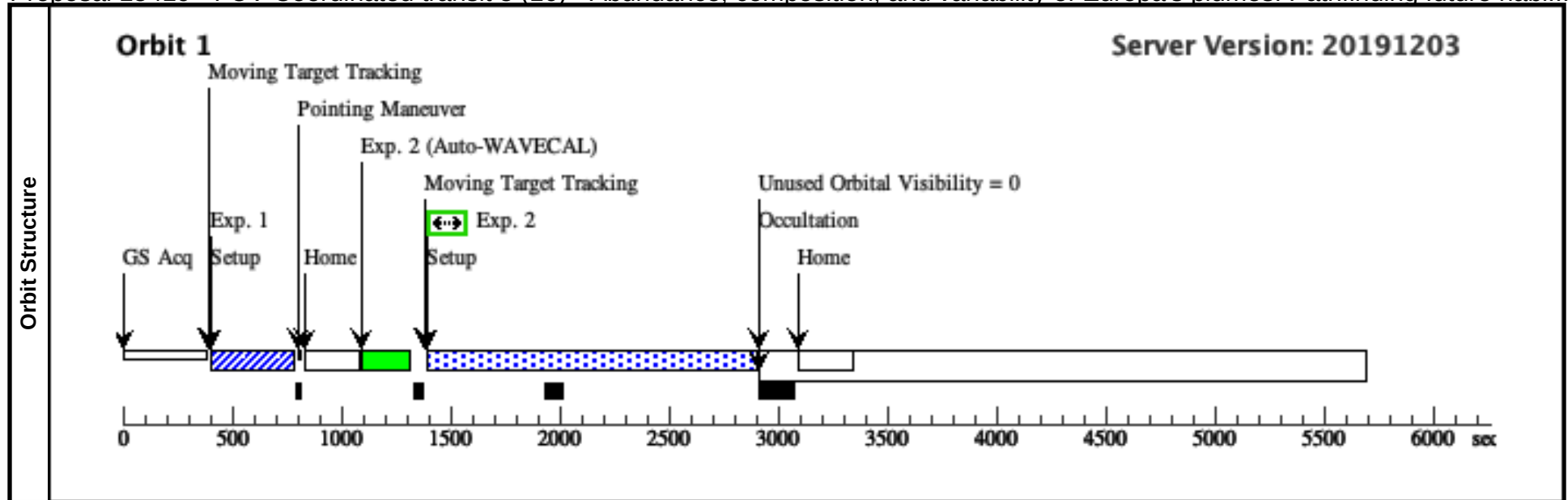
# Proposal 15419 - FUV Coordinated transit 4 (15) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habi...

|                                          |                                                                                                                                                                                          |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------|-------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------|--------------------------------------------|--|------------------------------|--|
| Visit                                    | Proposal 15419, FUV Coordinated transit 4 (15), completed                                                                                                                                |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                          | Diagnostic Status: Warning                                                                                                                                                               |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|                                          | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                                                                                          |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|                                          | Special Requirements: SCHED 100%                                                                                                                                                         |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
| Diagnostics                              | (Exposure 2 (FUV Coordinated transit 4 (15))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|                                          |                                                                                                                                                                                          |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
| Solar System Targets                     | #                                                                                                                                                                                        | Name           | Level 1            | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                             | Ephem Center                                  |        |                                            |  |                              |  |
|                                          | (5)                                                                                                                                                                                      | EUROPA-TRANSIT | STD=JUPITER        | STD=EUROPA                    |                 | NOT OCC OF EUROPA-TRANSIT BY JUPITER FROM EARTH, SEP OF EUROPA-TRANSIT CALLISTO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT IO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT GANYMEDE FROM EARTH GT 5", TRANSIT OF EUROPA ACROSS JUPITER FROM EARTH, CML OF JUPITER FROM EARTH BETWEEN 0 180 | EARTH                                         |        |                                            |  |                              |  |
|                                          | Comments: Description=Europa<br>Extended=YES                                                                                                                                             |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|                                          | (8)                                                                                                                                                                                      | IO-ACQ         | STD=JUPITER        | STD=IO                        |                 | NOT OCC OF IO-ACQ BY JUPITER FROM EARTH, SEP OF IO-ACQ JUPITER FROM EARTH GT 10", SEP OF IO-ACQ CALLISTO FROM EARTH GT 5", SEP OF IO-ACQ EUROPA FROM EARTH GT 5", SEP OF IO-ACQ GANYMEDE FROM EARTH GT 5"                                                                          | EARTH                                         |        |                                            |  |                              |  |
| Comments: Description=IO<br>Extended=YES |                                                                                                                                                                                          |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
| Exposures                                | #                                                                                                                                                                                        | Label          | Target             | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                                       | Special Reqs.                                 | Groups | Exp. Time (Total)/[Actual Dur.]            |  | Orbit                        |  |
|                                          | 1                                                                                                                                                                                        | Acquisition    | (8) IO-ACQ         | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=23;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                                | GS ACQ SCENARIO BASE1BE                       |        | 0.3 Secs (0.3 Secs)<br>[==>]               |  | [1]                          |  |
|                                          | Comments: This acquisition exposure can possibly be deleted/omitted, if the observation is taken directly subsequent to a Europa plume STIS FUV filter imaging orbit from program 15424. |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|                                          | Checkbox parameter selected for size of Io in the period near Jupiter opposition, i.e. April - June 2018. If period or moon is different, the checkbox size needs to be adjusted.        |                |                    |                               |                 |                                                                                                                                                                                                                                                                                    |                                               |        |                                            |  |                              |  |
|                                          | 2                                                                                                                                                                                        |                | (5) EUROPA-TRANSIT | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=50<br>0                                                                                                                                                                                                                                                                | POS TARG 0.0,-4.0;<br>GS ACQ SCENARIO BASE1BE |        | 1700 Secs (1454 Secs)<br>[==>1454.0 Secs ] |  | [1]                          |  |



# Proposal 15419 - FUV Coordinated transit 5 (16) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habi...

|                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                               |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------|-------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------|--------------------------------------------|-------|------------------------------|--|
| Visit                                                                                                                                                                                                                                                                     | Proposal 15419, FUV Coordinated transit 5 (16), implementation                                                                                                                                                                                                                                                                                                                |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                                                                                                                                                                                                                                                           | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                                                                                    |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                                                                                                                                                                                                                                                                               |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           | Special Requirements: SCHED 100%; BETWEEN 18-AUG-2020:01:30:00 AND 18-AUG-2020:02:30:00                                                                                                                                                                                                                                                                                       |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
| Diagnostics                                                                                                                                                                                                                                                               | (Exposure 2 (FUV Coordinated transit 5 (16))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                                                                                                                                                                                                     |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                               |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
| Solar System Targets                                                                                                                                                                                                                                                      | #                                                                                                                                                                                                                                                                                                                                                                             | Name            | Level 1              | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                                 | Ephem Center                                      |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           | (16)                                                                                                                                                                                                                                                                                                                                                                          | EUROPA-TRANSIT4 | STD=JUPITER          | STD=EUROPA                    |                 | NOT OCC OF EUROPA-TRANSIT4 BY JUPITER FROM EARTH, SEP OF EUROPA-TRANSIT4 CALLISTO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT4 IO FROM EARTH GT 5", SEP OF EUROPA-TRANSIT4 GANYMEDE FROM EARTH GT 5", TRANSIT OF EUROPA ACROSS JUPITER FROM EARTH, CML OF JUPITER FROM EARTH BETWEEN 0 180 | EARTH                                             |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           | Comments: Description=Europa<br>Extended=YES                                                                                                                                                                                                                                                                                                                                  |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           | (18)                                                                                                                                                                                                                                                                                                                                                                          | IO-ACQ3         | STD=JUPITER          | STD=IO                        |                 | NOT OCC OF IO-ACQ3 BY JUPITER FROM EARTH, SEP OF IO-ACQ3 JUPITER FROM EARTH GT 10", SEP OF IO-ACQ3 CALLISTO FROM EARTH GT 5", SEP OF IO-ACQ3 EUROPA FROM EARTH GT 5", SEP OF IO-ACQ3 GANYMEDE FROM EARTH GT 5"                                                                         | EARTH                                             |        |                                            |       |                              |  |
| Comments: Targets 8 and 11 for Io were processed in early 2018 so their ephemeris does not go out far enough to be used with a visit that will execute in spring/summer 2020. Target 18 is a copy of target 8 to be used with visit 16.<br>Description=IO<br>Extended=YES |                                                                                                                                                                                                                                                                                                                                                                               |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
| Exposures                                                                                                                                                                                                                                                                 | #                                                                                                                                                                                                                                                                                                                                                                             | Label           | Target               | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                                           | Special Reqs.                                     | Groups | Exp. Time (Total)/[Actual Dur.]            | Orbit |                              |  |
|                                                                                                                                                                                                                                                                           | 1                                                                                                                                                                                                                                                                                                                                                                             | Acquisition     | (18) IO-ACQ3         | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=23;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                                    | GS ACQ SCENARI<br>O BASE1BE                       |        | 0.3 Secs (0.3 Secs)<br>[>=>]               |       | [1]                          |  |
|                                                                                                                                                                                                                                                                           | Comments: This acquisition exposure can possibly be deleted/omitted, if the observation is taken directly subsequent to a Europa plume STIS FUV filter imaging orbit from program 15424.<br>Checkbox parameter selected for size of Io in the period near Jupiter opposition, i.e. April - June 2018. If period or moon is different, the checkbox size needs to be adjusted. |                 |                      |                               |                 |                                                                                                                                                                                                                                                                                        |                                                   |        |                                            |       |                              |  |
|                                                                                                                                                                                                                                                                           | 2                                                                                                                                                                                                                                                                                                                                                                             |                 | (16) EUROPA-TRANSIT4 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=50<br>0                                                                                                                                                                                                                                                                    | POS TARG 0.0,-4.0;<br>GS ACQ SCENARI<br>O BASE1BE |        | 1700 Secs (1454 Secs)<br>[>=>1454.0 Secs ] |       | [1]                          |  |

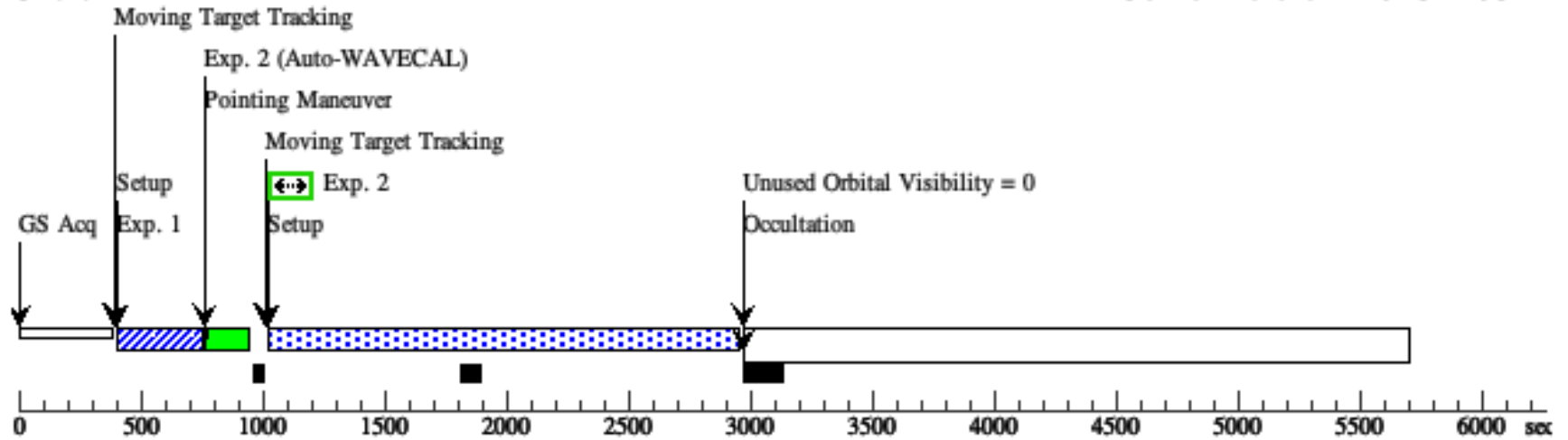


# Proposal 15419 - FUV Europa-East 3 (17) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability...

|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
|----------------------|-------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit                | Proposal 15419, FUV Europa-East 3 (17), failed                                                                    |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  | Wed Feb 12 17:01:45 GMT 2020 |  |
|                      | Diagnostic Status: Warning                                                                                        |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
|                      | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
|                      | Special Requirements: SCHED 80%; BETWEEN 30-JUL-2019:03:30:00 AND 30-JUL-2019:04:30:00                            |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
| Diagnostics          | (Exposure 2 (FUV Europa-East 3 (17))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
|                      | (Exposure 3 (FUV Europa-East 3 (17))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
| Solar System Targets | #                                                                                                                 | Name        | Level 1         | Level 2                       | Level 3       | Window                                                                                                                                                                                                                 | Ephem Center            |        |                                 |  |                              |  |
|                      | (1)                                                                                                               | EUROPA-EAST | STD=JUPITER     | STD=EUROPA                    |               | NOT OCC OF EUROPA-EAST BY JUPITER FROM EARTH, SEP OF EUROPA-EAST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST IO FROM EARTH GT 10", SEP OF EUROPA-EAST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH                   |        |                                 |  |                              |  |
|                      | Comments: Description=Europa                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        |                                 |  |                              |  |
| Exposures            | #                                                                                                                 | Label       | Target          | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                           | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|                      | 1                                                                                                                 | Acquisition | (1) EUROPA-EAST | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; CENTER=GEOMETRIC-CENTER                                                                                                                                                                  | GS ACQ SCENARIO BASE1BE |        | 0.3 Secs (0.3 Secs)             |  |                              |  |
|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        | [==>]                           |  | [1]                          |  |
|                      | 2                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                       | POS TARG null,-5.0      |        | 2200 Secs (1877 Secs)           |  |                              |  |
|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        | [==>1877.0 Secs]                |  | [1]                          |  |
|                      | 3                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                       | SAME POS AS 2           |        | 2800 Secs (2634 Secs)           |  |                              |  |
|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |        | [==>2634.0 Secs]                |  | [2]                          |  |

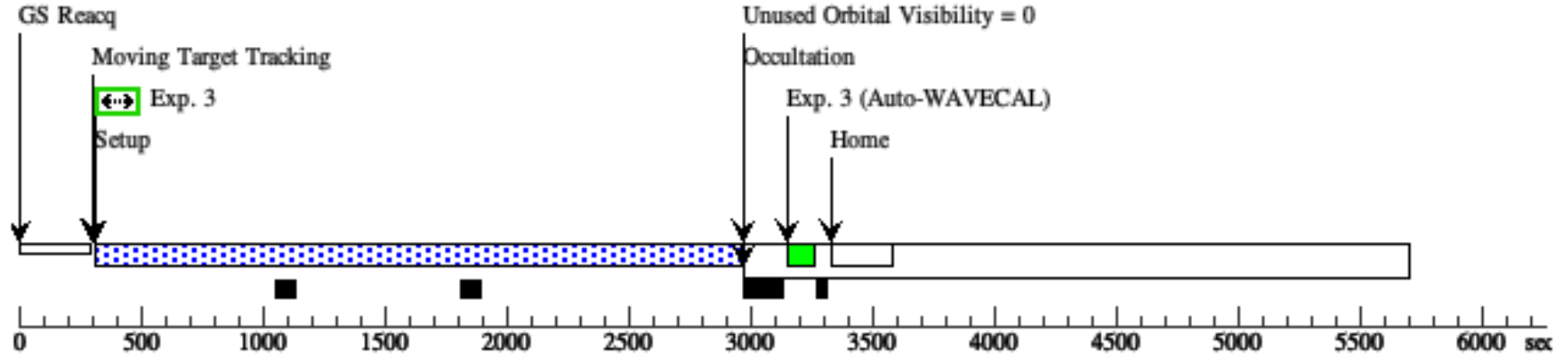
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

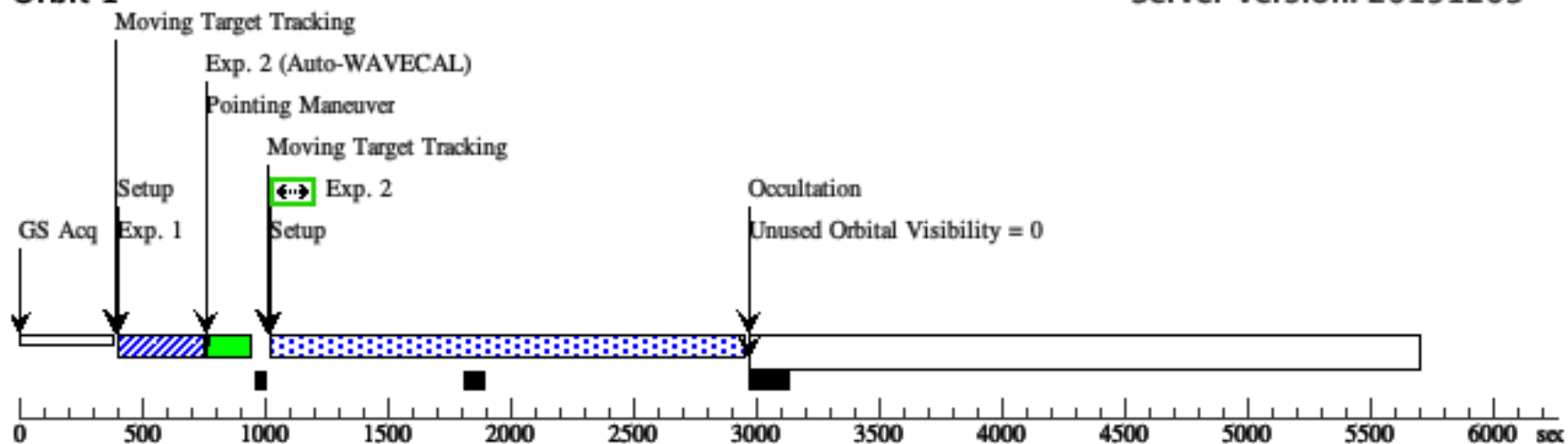


# Proposal 15419 - FUV Europa-East 3 (7A) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitabilit...

|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
|----------------------|-------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------|---------------------------------|-------|
| Visit                | Proposal 15419, FUV Europa-East 3 (7A), failed                                                                    |             |                 |                               |               |                                                                                                                                                                                                                        |                         | Wed Feb 12 17:01:45 GMT 2020 |                                 |       |
|                      | Diagnostic Status: Warning                                                                                        |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
|                      | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
|                      | Special Requirements: SCHED 80%; BETWEEN 30-JUL-2019:08:30:00 AND 30-JUL-2019:09:30:00                            |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
| Diagnostics          | (Exposure 2 (FUV Europa-East 3 (7A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
|                      | (Exposure 3 (FUV Europa-East 3 (7A))) Warning (Form): Sensitive exposures should have an ETC run number provided. |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
| Solar System Targets | #                                                                                                                 | Name        | Level 1         | Level 2                       | Level 3       | Window                                                                                                                                                                                                                 | Ephem Center            |                              |                                 |       |
|                      | (1)                                                                                                               | EUROPA-EAST | STD=JUPITER     | STD=EUROPA                    |               | NOT OCC OF EUROPA-EAST BY JUPITER FROM EARTH, SEP OF EUROPA-EAST CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST IO FROM EARTH GT 10", SEP OF EUROPA-EAST GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH                   |                              |                                 |       |
|                      | Comments: Description=Europa                                                                                      |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              |                                 |       |
| Exposures            | #                                                                                                                 | Label       | Target          | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                           | Special Reqs.           | Groups                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                      | 1                                                                                                                 | Acquisition | (1) EUROPA-EAST | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                          | GS ACQ SCENARIO BASE1BE |                              | 0.3 Secs (0.3 Secs)             |       |
|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              | [==>]                           | [1]   |
|                      | 2                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                       | POS TARG null,-5.0      |                              | 2200 Secs (1877 Secs)           |       |
|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              | [==>1877.0 Secs ]               | [1]   |
|                      | 3                                                                                                                 |             | (1) EUROPA-EAST | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                       | SAME POS AS 2           |                              | 2800 Secs (2634 Secs)           |       |
|                      |                                                                                                                   |             |                 |                               |               |                                                                                                                                                                                                                        |                         |                              | [==>2634.0 Secs ]               | [2]   |

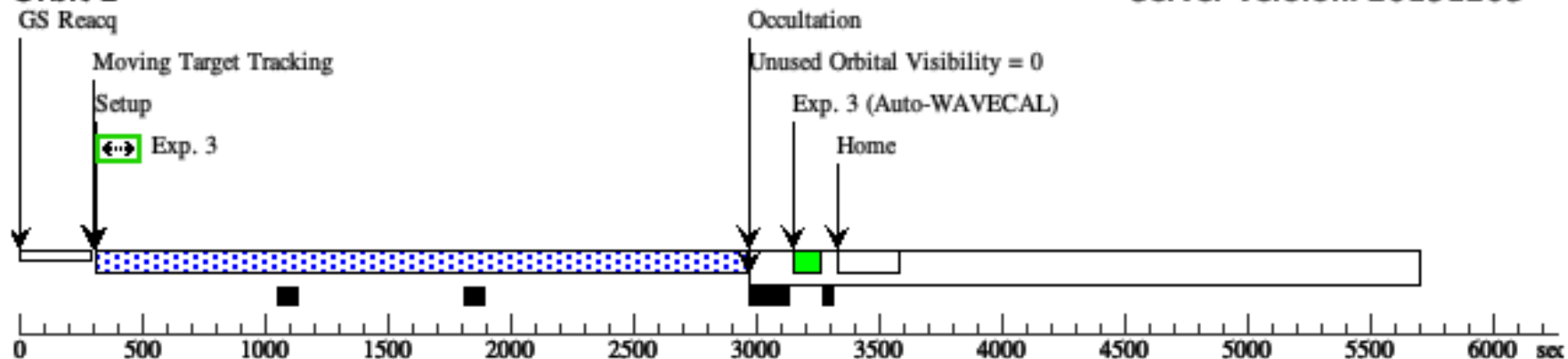
### Orbit 1

Server Version: 20191203



### Orbit 2

Server Version: 20191203

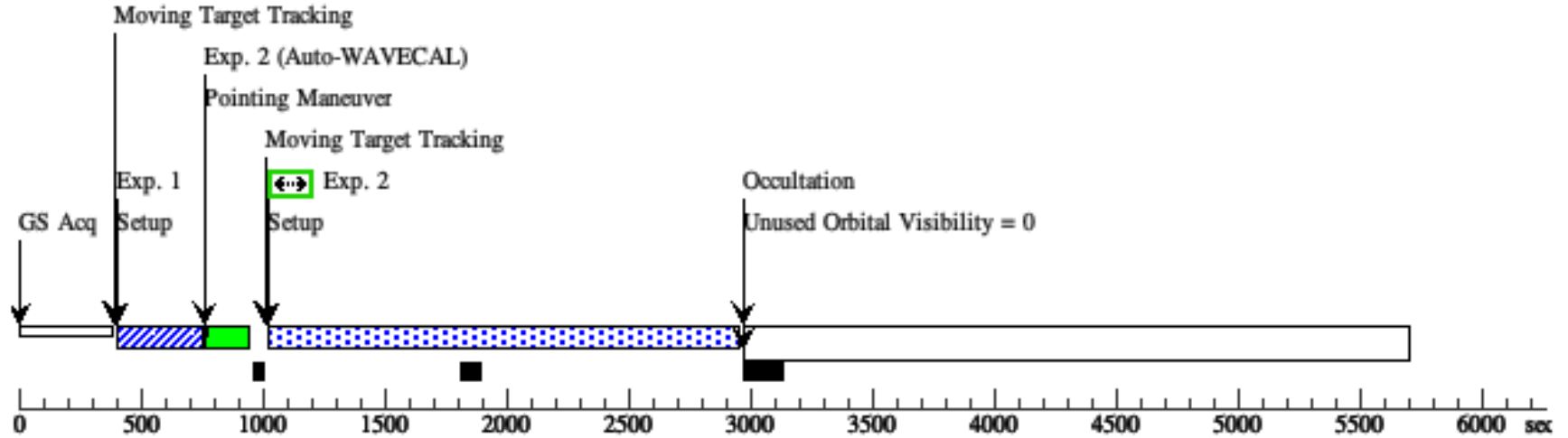


# Proposal 15419 - FUV Europa-East 3 (24) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability...

|                                    |                                                                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------|-------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|---------------------------------|-----|------------------------------|--|
| Visit                              | Proposal 15419, FUV Europa-East 3 (24), implementation                                                            |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                    | Diagnostic Status: Warning                                                                                        |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
|                                    | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
|                                    | Special Requirements: SCHED 80%; BETWEEN 2020.230:01:50:00 AND 2020.230:02:45:00                                  |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
| Comments: HOPR repeat of visit 17. |                                                                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
| Diagnostics                        | (Exposure 2 (FUV Europa-East 3 (24))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
|                                    | (Exposure 3 (FUV Europa-East 3 (24))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
| Solar System Targets               | #                                                                                                                 | Name               | Level 1                       | Level 2                       | Level 3          | Window                                                                                                                                                                                                                     | Ephem Center            |                       |                                 |     |                              |  |
|                                    | (17)                                                                                                              | EUROPA-EAST2       | STD=JUPITER                   | STD=EUROPA                    |                  | NOT OCC OF EUROPA-EAST2 BY JUPITER FROM EARTH, SEP OF EUROPA-EAST2 CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST2 IO FROM EARTH GT 10", SEP OF EUROPA-EAST2 GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH                   |                       |                                 |     |                              |  |
|                                    | Comments: Copy of target 1 to be used with HOPR visits 24 and 25. Visit 1 could not be used past Nov 2019.        |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
| Description=Europa                 |                                                                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       |                                 |     |                              |  |
| Exposures                          | #                                                                                                                 | Label              | Target                        | Config,Mode,Aperture          | Spectral Els.    | Opt. Params.                                                                                                                                                                                                               | Special Reqs.           | Groups                | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|                                    | 1                                                                                                                 | Acquisition        | (17) EUROPA-EAS T2            | STIS/CCD, ACQ, F28X50LP       | MIRROR           | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                              | GS ACQ SCENARIO BASE1BE |                       | 0.3 Secs (0.3 Secs)             |     |                              |  |
|                                    |                                                                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       | [==>]                           |     | [1]                          |  |
|                                    | 2                                                                                                                 |                    | (17) EUROPA-EAS T2            | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A     | BUFFER-TIME=75 0                                                                                                                                                                                                           | POS TARG null,-5.0      |                       | 2200 Secs (1877 Secs)           |     |                              |  |
|                                    |                                                                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         |                       | [==>1877.0 Secs]                |     | [1]                          |  |
| 3                                  |                                                                                                                   | (17) EUROPA-EAS T2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A                  | BUFFER-TIME=75 0 | SAME POS AS 2                                                                                                                                                                                                              |                         | 2800 Secs (2634 Secs) |                                 |     |                              |  |
|                                    |                                                                                                                   |                    |                               |                               |                  |                                                                                                                                                                                                                            |                         | [==>2634.0 Secs]      |                                 | [2] |                              |  |

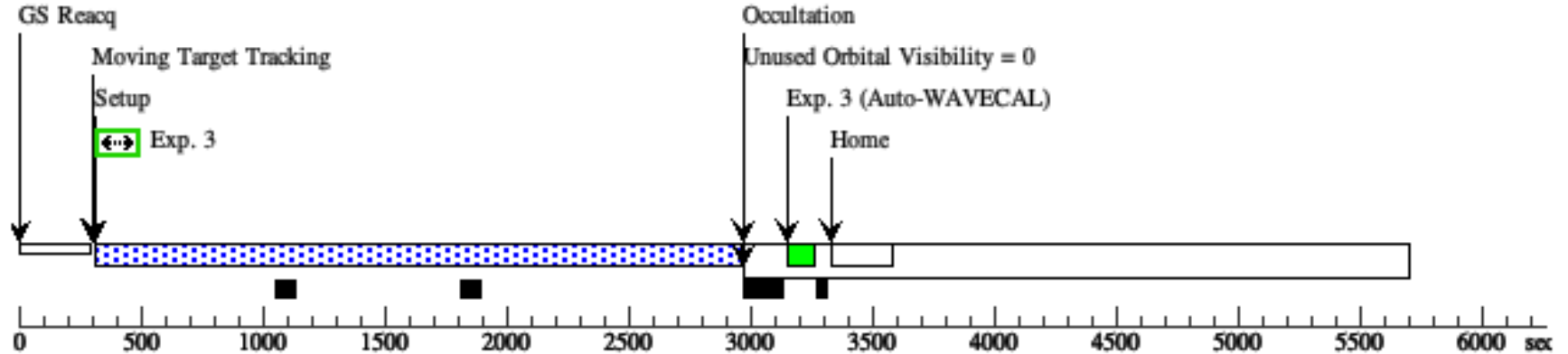
### Orbit 1

Server Version: 20191203



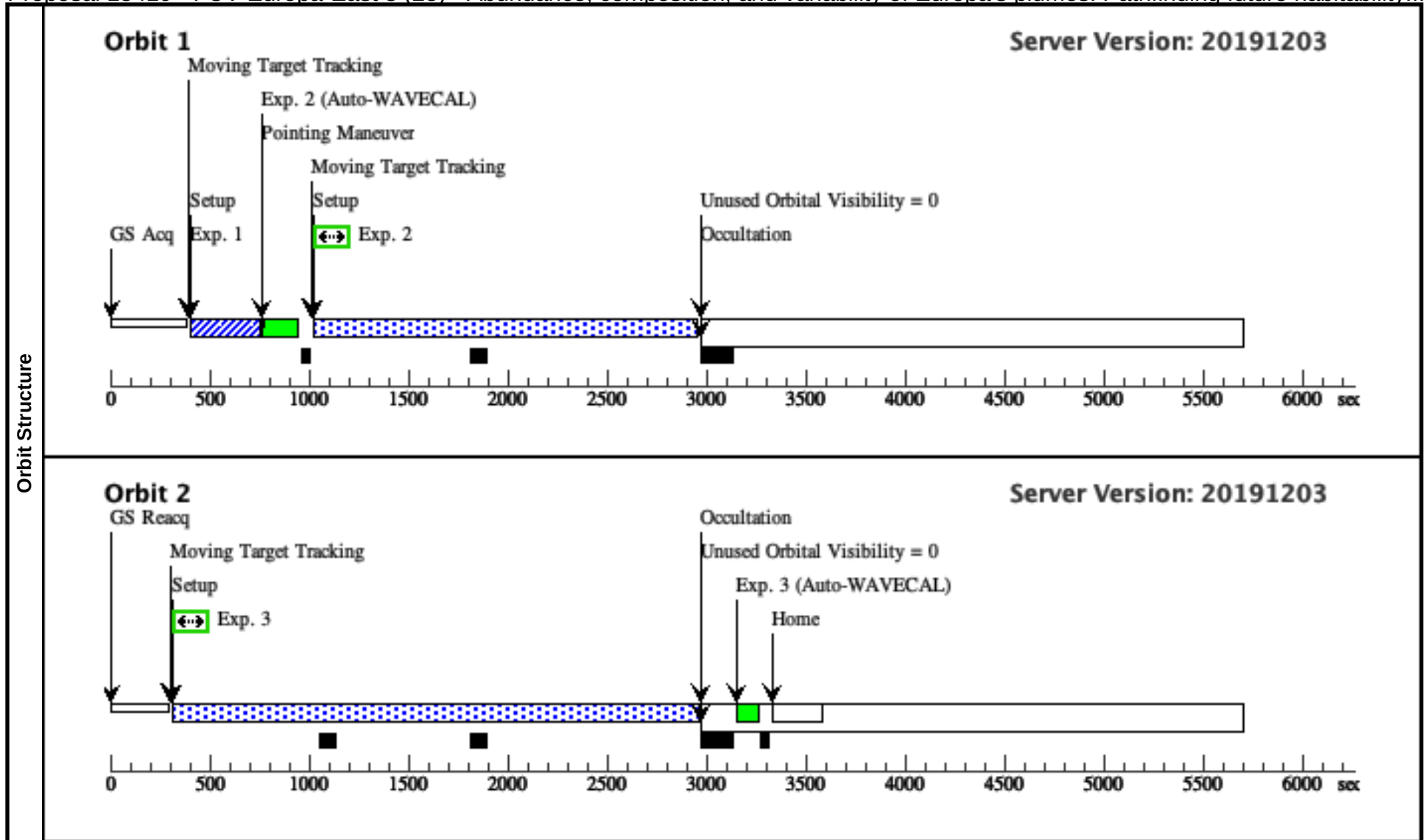
### Orbit 2

Server Version: 20191203



# Proposal 15419 - FUV Europa-East 3 (25) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability...

|                                   |                                                                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------|--------------------|-------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit                             | Proposal 15419, FUV Europa-East 3 (25), implementation                                                            |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  | Wed Feb 12 17:01:45 GMT 2020 |
|                                   | Diagnostic Status: Warning                                                                                        |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
|                                   | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
|                                   | Special Requirements: SCHED 80%; BETWEEN 2020.230:06:35:00 AND 2020.230:07:30:00                                  |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
| Comments: HOPR repeat of visit 7A |                                                                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
| Diagnostics                       | (Exposure 2 (FUV Europa-East 3 (25))) Warning (Form): Sensitive exposures should have an ETC run number provided. |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
|                                   | (Exposure 3 (FUV Europa-East 3 (25))) Warning (Form): Sensitive exposures should have an ETC run number provided. |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
| Solar System Targets              | #                                                                                                                 | Name         | Level 1            | Level 2                       | Level 3       | Window                                                                                                                                                                                                                     | Ephem Center            |        |                                 |  |                              |
|                                   | (17)                                                                                                              | EUROPA-EAST2 | STD=JUPITER        | STD=EUROPA                    |               | NOT OCC OF EUROPA-EAST2 BY JUPITER FROM EARTH, SEP OF EUROPA-EAST2 CALLISTO FROM EARTH GT 10", SEP OF EUROPA-EAST2 IO FROM EARTH GT 10", SEP OF EUROPA-EAST2 GANYMEDE FROM EARTH GT 10", OLG OF EUROPA-EAST BETWEEN 70 110 | EARTH                   |        |                                 |  |                              |
|                                   | Comments: Copy of target 1 to be used with HOPR visits 24 and 25. Visit 1 could not be used past Nov 2019.        |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
| Description=Europa                |                                                                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        |                                 |  |                              |
| Exposures                         | #                                                                                                                 | Label        | Target             | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                                                                                                                                                                                                               | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                   | 1                                                                                                                 | Acquisition  | (17) EUROPA-EAS T2 | STIS/CCD, ACQ, F28X50LP       | MIRROR        | CHECKBOX=19; ACQTYPE=DIFFUSE; CENTER=GEOMETRIC-CENTER                                                                                                                                                                      | GS ACQ SCENARIO BASE1BE |        | 0.3 Secs (0.3 Secs)             |  |                              |
|                                   |                                                                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        | [==>]                           |  | [1]                          |
|                                   | 2                                                                                                                 |              | (17) EUROPA-EAS T2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                           | POS TARG null,-5.0      |        | 2200 Secs (1877 Secs)           |  |                              |
|                                   |                                                                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        | [==>1877.0 Secs]                |  | [1]                          |
|                                   | 3                                                                                                                 |              | (17) EUROPA-EAS T2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A  | BUFFER-TIME=75 0                                                                                                                                                                                                           | SAME POS AS 2           |        | 2800 Secs (2634 Secs)           |  |                              |
|                                   |                                                                                                                   |              |                    |                               |               |                                                                                                                                                                                                                            |                         |        | [==>2634.0 Secs]                |  | [2]                          |

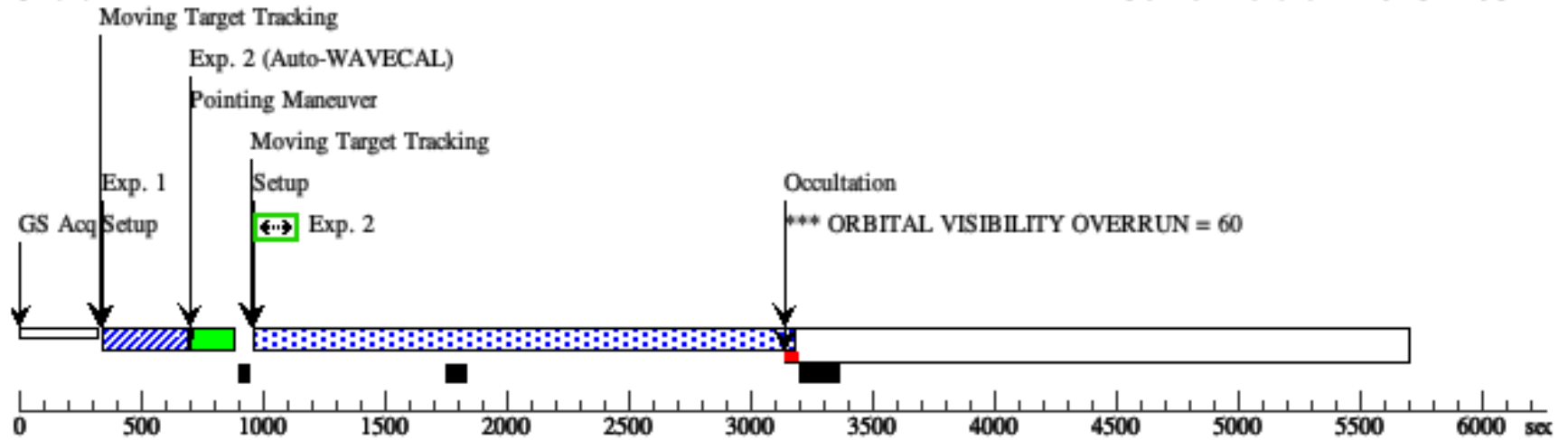


# Proposal 15419 - FUV Europa-around-transit 3 (18) - Abundance, composition, and variability of Europa's plumes: Pathfinding future h...

|                                                                                                             |                                                                                                                             |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|-------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|---------------------------------|-----|------------------------------|--|
| Visit                                                                                                       | Proposal 15419, FUV Europa-around-transit 3 (18), completed                                                                 |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     | Wed Feb 12 17:01:45 GMT 2020 |  |
|                                                                                                             | Diagnostic Status: Warning                                                                                                  |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|                                                                                                             | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                             |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|                                                                                                             | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 03-JUL-2018:00:00:00                                                 |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
| Comments: Visit 18 needed to be split into two 2 orbit visit. This visit contains the first pair of orbits. |                                                                                                                             |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
| Diagnostics                                                                                                 | (FUV Europa-around-transit 3 (18)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|                                                                                                             | (FUV Europa-around-transit 3 (18)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                      |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|                                                                                                             | (Exposure 2 (FUV Europa-around-transit 3 (18))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|                                                                                                             | (Exposure 3 (FUV Europa-around-transit 3 (18))) Warning (Form): Sensitive exposures should have an ETC run number provided. |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
| Solar System Targets                                                                                        | #                                                                                                                           | Name                        | Level 1                       | Level 2                       | Level 3         | Window                                                                                                                                                                                                                      | Ephem Center            |                       |                                 |     |                              |  |
|                                                                                                             | (13)                                                                                                                        | EUROPA-AROUND-TRANSIT4      | STD=JUPITER                   | STD=EUROPA                    |                 | NOT OCC OF EUROPA-AROUND-TRANSIT BY JUPITER FROM EARTH, SEP OF EUROPA-AROUND-TRANSIT4 CALLISTO FROM EARTH GT 5", SEP OF EUROPA-AROUND-TRANSIT4 IO FROM EARTH GT 5", SEP OF EUROPA-AROUND-TRANSIT4 GANYMEDE FROM EARTH GT 5" | EARTH                   |                       |                                 |     |                              |  |
|                                                                                                             | Comments: Duplicated of target 4. OLG removed to allow visit 18 to schedule.                                                |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
|                                                                                                             | Description=Europa<br>Extended=YES                                                                                          |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       |                                 |     |                              |  |
| Exposures                                                                                                   | #                                                                                                                           | Label                       | Target                        | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                | Special Reqs.           | Groups                | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|                                                                                                             | 1                                                                                                                           | Acquisition                 | (13) EUROPA-AROUND-TRANSIT4   | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                               | GS ACQ SCENARIO BASE1B3 |                       | 0.3 Secs (0.3 Secs)             |     |                              |  |
|                                                                                                             |                                                                                                                             |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       | [==>]                           |     | [1]                          |  |
|                                                                                                             | 2                                                                                                                           |                             | (13) EUROPA-AROUND-TRANSIT4   | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A    | BUFFER-TIME=750                                                                                                                                                                                                             | POS TARG null,-4.0      |                       | 2200 Secs (2166 Secs)           |     |                              |  |
|                                                                                                             |                                                                                                                             |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         |                       | [==>2166.0 Secs]                |     | [1]                          |  |
| 3                                                                                                           |                                                                                                                             | (13) EUROPA-AROUND-TRANSIT4 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L 1425 A                  | BUFFER-TIME=750 | SAME POS AS 2                                                                                                                                                                                                               |                         | 2800 Secs (2943 Secs) |                                 |     |                              |  |
|                                                                                                             |                                                                                                                             |                             |                               |                               |                 |                                                                                                                                                                                                                             |                         | [==>2943.0 Secs]      |                                 | [2] |                              |  |

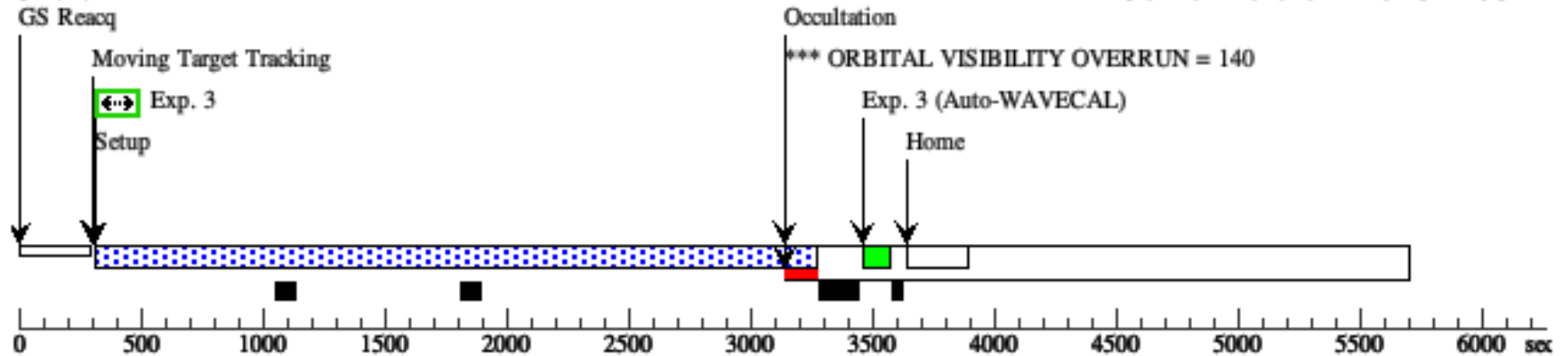
### Orbit 1

Server Version: 20191203



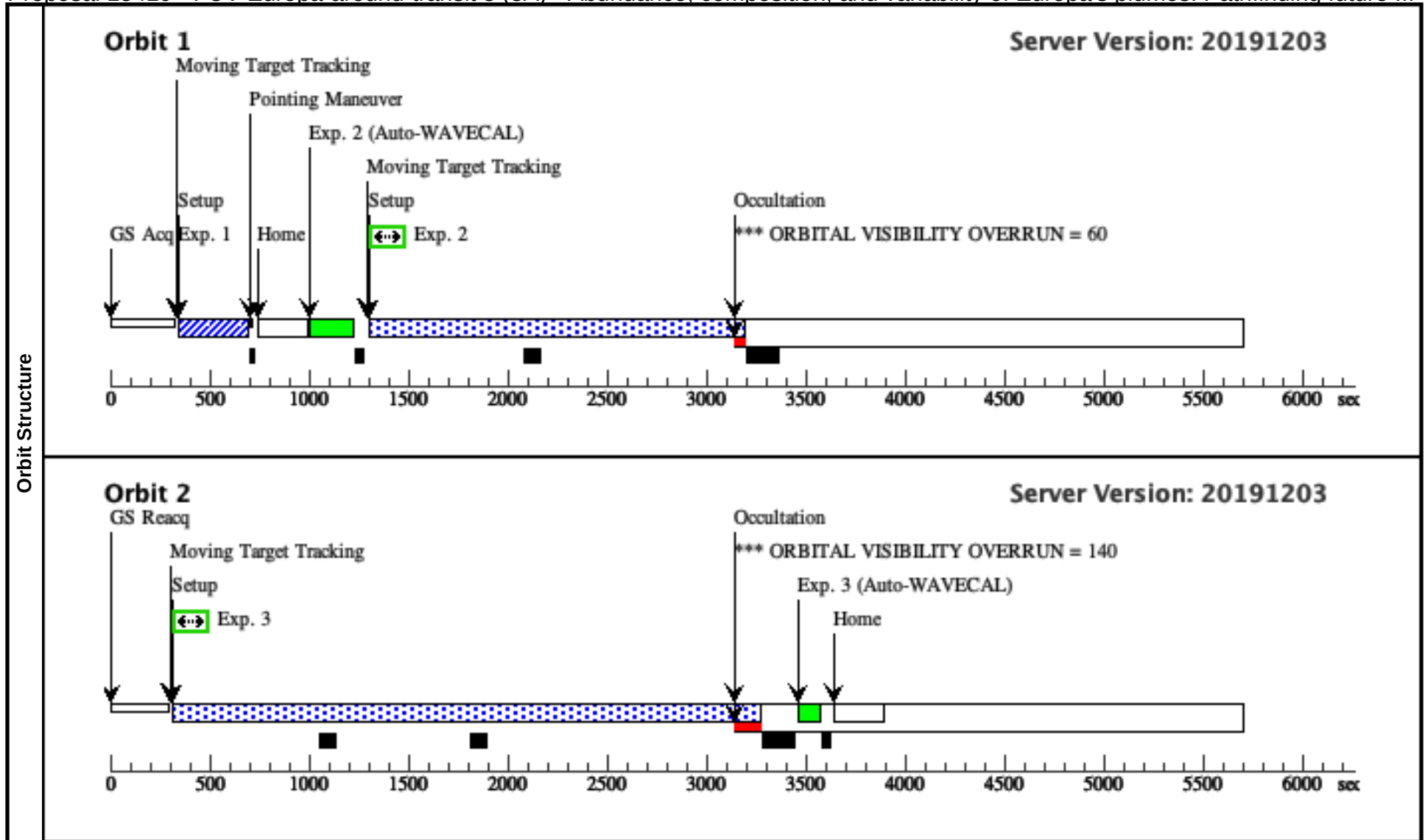
### Orbit 2

Server Version: 20191203



# Proposal 15419 - FUV Europa-around-transit 3 (8A) - Abundance, composition, and variability of Europa's plumes: Pathfinding future ...

|                                                                                                       |                                                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------|-------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------|-------------------------------------------|-------|------------------------------|
| Visit                                                                                                 | Proposal 15419, FUV Europa-around-transit 3 (8A), completed                                                                      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       | Wed Feb 12 17:01:45 GMT 2020 |
|                                                                                                       | Diagnostic Status: Warning                                                                                                       |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                       | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                       | Special Requirements: BETWEEN 09-APR-2018:00:00:00 AND 03-JUL-2018:00:00:00                                                      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Comments: Visit 18 needed to be split into two 2 orbit visits. This visit contains the last 2 orbits. |                                                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Diagnostics                                                                                           | (FUV Europa-around-transit 3 (8A)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                           |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                       | (FUV Europa-around-transit 3 (8A)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                           |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                       | (Exposure 2 (FUV Europa-around-transit 3 (8A))) Warning (Form): Sensitive exposures should have an ETC run number provided.      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                       | (Exposure 3 (FUV Europa-around-transit 3 (8A))) Warning (Form): Sensitive exposures should have an ETC run number provided.      |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Solar System Targets                                                                                  | #                                                                                                                                | Name                   | Level 1                     | Level 2                       | Level 3         | Window                                                                                                                                                                                                                                                                                | Ephem Center                                   |        |                                           |       |                              |
|                                                                                                       | (10)                                                                                                                             | EUROPA-AROUND-TRANSIT2 | STD=JUPITER                 | STD=EUROPA                    |                 | NOT OCC OF EUROPA-AROUND-TRANSIT BY JUPITER FROM EARTH,<br>SEP OF EUROPA-AROUND-TRANSIT2 CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-AROUND-TRANSIT2 IO FROM EARTH GT 5",<br>SEP OF EUROPA-AROUND-TRANSIT2 GANYMEDE FROM EARTH GT 5",<br>OLG OF EUROPA-AROUND-TRANSIT BETWEEN 159 200 | EARTH                                          |        |                                           |       |                              |
|                                                                                                       | Comments: Duplicated of target 4. OLG opened up by a degree to allow visit 18 to schedule.<br>Description=Europa<br>Extended=YES |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
|                                                                                                       | (11)                                                                                                                             | IO-ACQ2                | STD=JUPITER                 | STD=IO                        |                 | NOT OCC OF IO-ACQ2 BY JUPITER FROM EARTH,<br>SEP OF IO-ACQ2 EUROPA FROM EARTH GT 10",<br>SEP OF IO-ACQ2 GANYMEDE FROM EARTH GT 10",<br>SEP OF IO-ACQ2 CALLISTO FROM EARTH GT 10"                                                                                                      | EARTH                                          |        |                                           |       |                              |
| Comments: Description=IO<br>Extended=YES                                                              |                                                                                                                                  |                        |                             |                               |                 |                                                                                                                                                                                                                                                                                       |                                                |        |                                           |       |                              |
| Exposures                                                                                             | #                                                                                                                                | Label                  | Target                      | Config,Mode,Aperture          | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                                                                          | Special Reqs.                                  | Groups | Exp. Time (Total)/[Actual Dur.]           | Orbit |                              |
|                                                                                                       | 1                                                                                                                                | Acquisition            | (11) IO-ACQ2                | STIS/CCD, ACQ, F28X50LP       | MIRROR          | CHECKBOX=19;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                                                                                   | GS ACQ SCENARIO BASE1B3                        |        | 0.3 Secs (0.3 Secs)<br>[==>]              |       | [1]                          |
|                                                                                                       | 2                                                                                                                                |                        | (10) EUROPA-AROUND-TRANSIT2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                                                                                       | POS TARG null,-4.0;<br>GS ACQ SCENARIO BASE1B3 |        | 2200 Secs (1832 Secs)<br>[==>1832.0 Secs] |       | [1]                          |
|                                                                                                       | 3                                                                                                                                |                        | (10) EUROPA-AROUND-TRANSIT2 | STIS/FUV-MAMA, TIME-TAG, 52X2 | G140L<br>1425 A | BUFFER-TIME=750                                                                                                                                                                                                                                                                       | SAME POS AS 2                                  |        | 2800 Secs (2943 Secs)<br>[==>2943.0 Secs] |       | [2]                          |

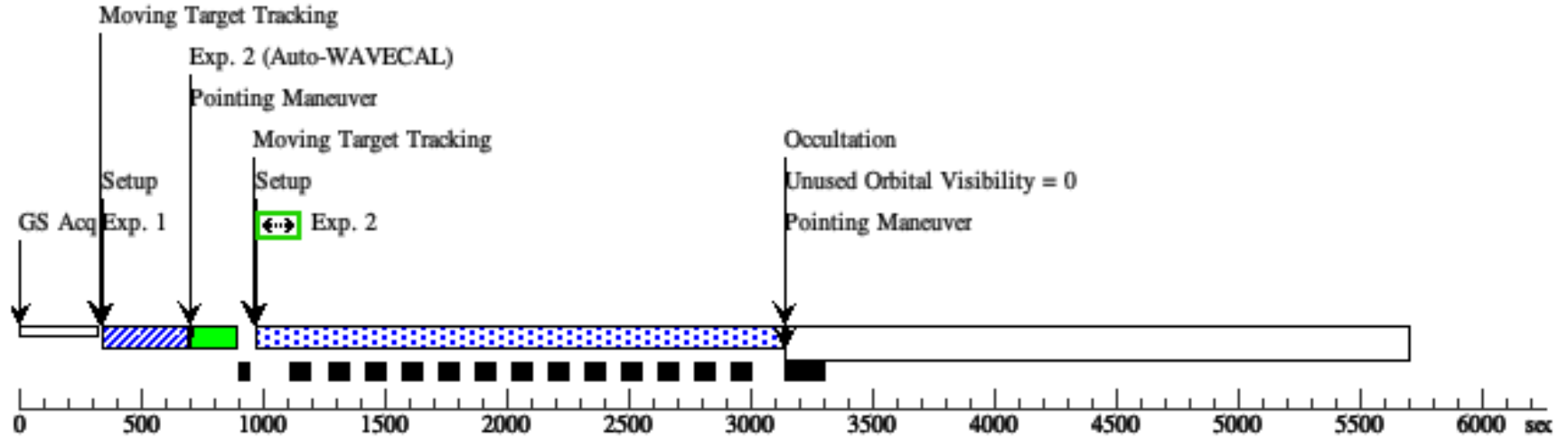


# Proposal 15419 - NUV off-limb after opp (19) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitabi...

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------|-------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------|---------------------------------|-------|
| Visit                | Proposal 15419, NUV off-limb after opp (19), completed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         | Wed Feb 12 17:01:45 GMT 2020 |                                 |       |
|                      | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | Scientific Instruments: STIS/NUV-MAMA, STIS/CCD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | Special Requirements: ORIENT 111D TO 123 D; BETWEEN 04-JUN-2018:00:00:00 AND 02-AUG-2018:00:00:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | Comments: This visit required precise off-limb targeting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
| Diagnostics          | The slit should be parallel to the equator, i.e. have an angle of 90 degrees with respect to the polar axis (slightly different from original planing). This is constrained through the ORIENT keyword, which is calculated using the approximate angle between Europa North and Celestial North after opposition (-18 deg) and the offset of the STIS detector y axis from the telescope U3 axis (45.3 deg). ORIENT = 90 deg + 45 deg - 18 deg = 117 deg.                                                                                                                                                                                                                                                  |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | Furthermore, the slit needs to be shifted from the center of the disk to Europa south along the dispersion (x) axis such that the slit center has an offsets of 0.2 arcsec (1st exposure) and 0.4 arcsec (2nd exposure) to the limb. At the currently requested observing period between 04 June and 02 July 2018, Europa's angular diameter is between 0.96 and 0.90 arcsec, again implying an average radius is 0.465 arcsec. The POS TARG keyword is set to $X = -(-0.45 - 0.2) = 0.45$ (1st science exp) and $X = -(-0.45 - 0.40) = 0.65$ (1st science exp). The additional minus sign comes from the fact taht the target is placed w.r.t to slit and not the other way around as in the calculations. |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | UPDATE POS TARG when exact window is selected!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | (NUV off-limb after opp (19)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | (NUV off-limb after opp (19)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
| Solar System Targets | (NUV off-limb after opp (19)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | (NUV off-limb after opp (19)) Warning (Orbit Planner): STIS TIME-TAG EXPOSURE GENERATES HEAVY DATA VOLUME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | (Exposure 2 (NUV off-limb after opp (19))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | (Exposure 3 (NUV off-limb after opp (19))) Warning (Form): Sensitive exposures should have an ETC run number provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
| Exposures            | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Name                | Level 1                         | Level 2                 | Level 3         | Window                                                                                                                                                                                                                      | Ephem Center            |                              |                                 |       |
|                      | (7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | EUROPA-OFF-LIMB     | STD=JUPITER                     | STD=EUROPA              |                 | NOT OCC OF EUROPA-WEST BY JUPITER FROM EARTH, SEP OF EUROPA-OFF-LIMB CALLISTO FROM EARTH GT 5", SEP OF EUROPA-OFF-LIMB IO FROM EARTH GT 5", SEP OF EUROPA-OFF-LIMB GANYMEDE FROM EARTH GT 5", OLG OF EUROPA BETWEEN 260 310 | EARTH                   |                              |                                 |       |
|                      | Comments: Description=Europa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | Extended=YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              |                                 |       |
|                      | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Label               | Target                          | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.                                                                                                                                                                                                                | Special Reqs.           | Groups                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Acquisition         | (7) EUROPA-OFF-LIMB             | STIS/CCD, ACQ, F28X50LP | MIRROR          | CHECKBOX=19; ACQTYPE=DIFFUSE; DIFFUSE-CENTER=GEOMETRIC-CENTER                                                                                                                                                               | GS ACQ SCENARIO BASE1B3 |                              | 0.3 Secs (0.3 Secs)             |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         |                              | [>=>]                           | [1]   |
| 2                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | (7) EUROPA-OFF-LIMB | STIS/NUV-MAMA, TIME-TAG, 52X0.2 | G230L 2376 A            | BUFFER-TIME=150 | POS TARG 0.79,0                                                                                                                                                                                                             |                         | 2200 Secs (2144 Secs)        |                                 |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         | [>=>2144.0 Secs ]            | [1]                             |       |
| 3                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | (7) EUROPA-OFF-LIMB | STIS/NUV-MAMA, TIME-TAG, 52X0.2 | G230L 2376 A            | BUFFER-TIME=150 | POS TARG 0.89,null                                                                                                                                                                                                          |                         | 2700 Secs (2918 Secs)        |                                 |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                                 |                         |                 |                                                                                                                                                                                                                             |                         | [>=>2918.0 Secs ]            | [2]                             |       |

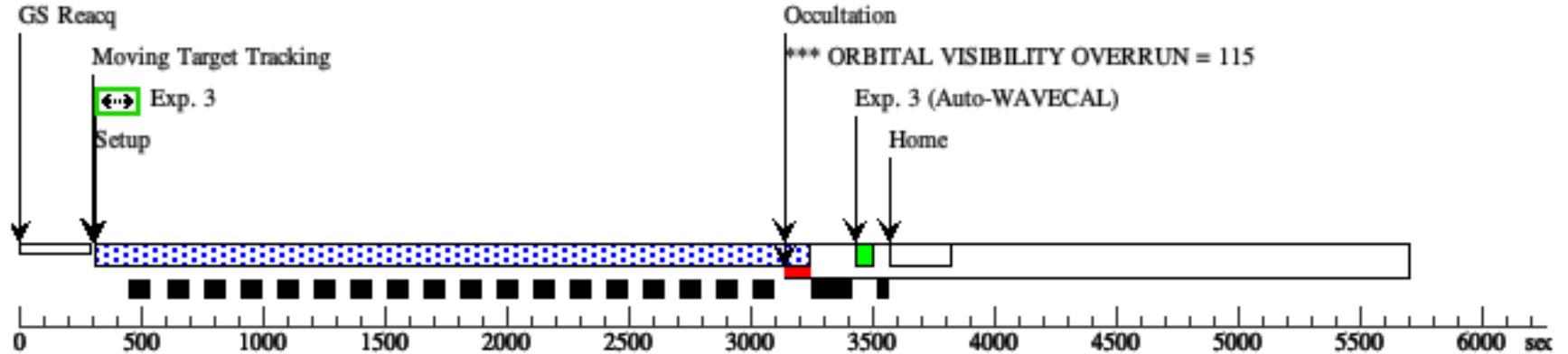
### Orbit 1

Server Version: 20191203



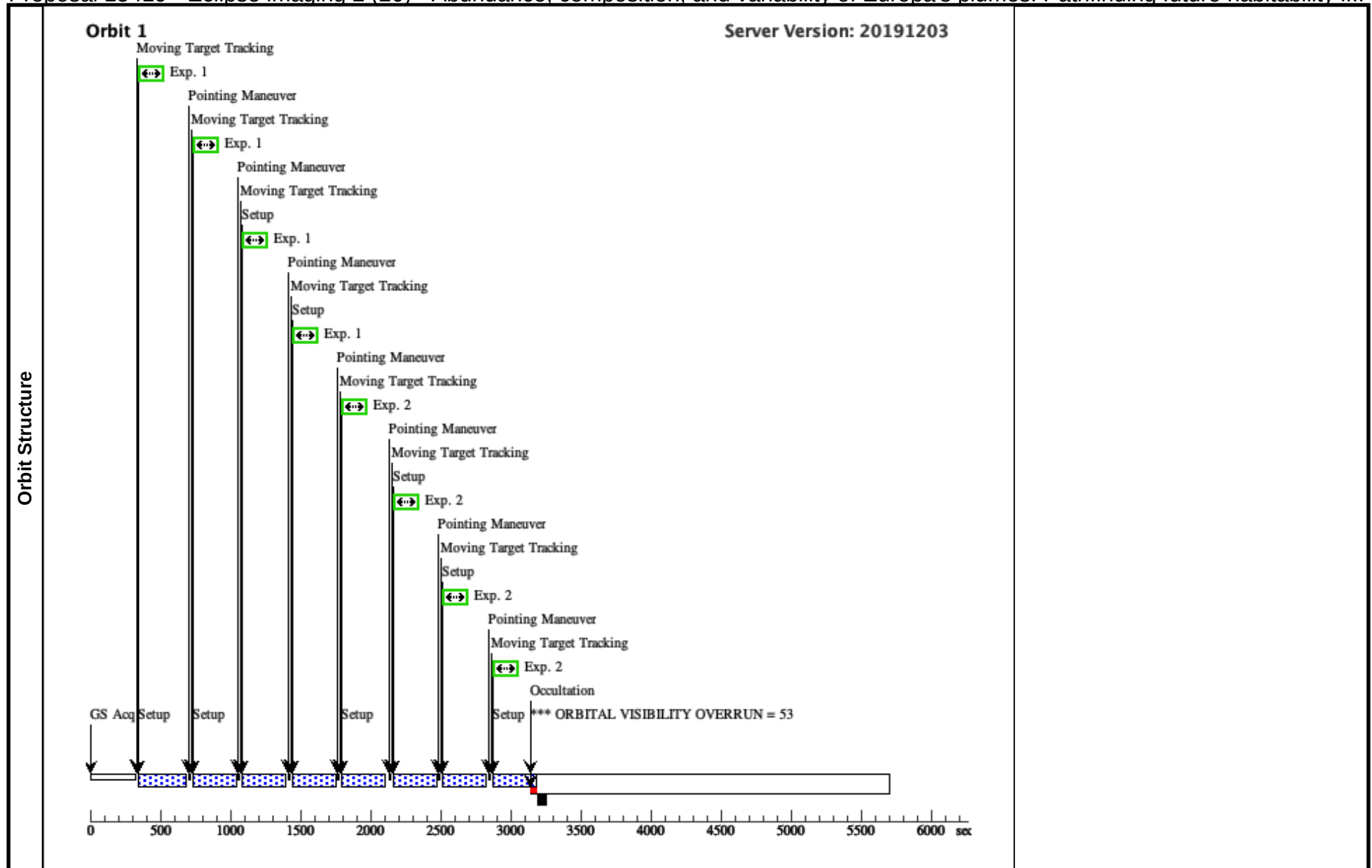
### Orbit 2

Server Version: 20191203



# Proposal 15419 - Eclipse imaging 2 (20) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability i...

|                                              |                                                                              |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              |           |  |  |  |
|----------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--|------------------------------|-----------|--|--|--|
| Visit                                        | Proposal 15419, Eclipse imaging 2 (20), completed                            |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  | Wed Feb 12 17:01:45 GMT 2020 |           |  |  |  |
|                                              | Diagnostic Status: Warning                                                   |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              |           |  |  |  |
|                                              | Scientific Instruments: WFC3/UVIS                                            |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              |           |  |  |  |
|                                              | Special Requirements: BETWEEN 01-JUL-2018:00:00:00 AND 31-AUG-2018:00:00:00  |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              |           |  |  |  |
| Diagnostics                                  | (Eclipse imaging 2 (20)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              |           |  |  |  |
| Patterns                                     | #                                                                            | Primary Pattern                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          | Secondary Pattern       |                                                   |                                                                                                                          |  |                              | Exposures |  |  |  |
|                                              | (1)                                                                          | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Purpose=DITHER<br>Angle Between Sides=81.785<br>Number Of Points=4<br>Center Pattern=false<br>Point Spacing=0.173<br>Line Spacing=0.112 |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              | (1), (2)  |  |  |  |
| Solar System Targets                         | #                                                                            | Name                                                                                                                                                                                                                                    | Level 1            | Level 2                           | Level 3       | Window                                                                                                                                                                                                                                                                                   | Ephem Center            |                                                   |                                                                                                                          |  |                              |           |  |  |  |
|                                              | (6)                                                                          | EUROPA-ECLIPSE                                                                                                                                                                                                                          | STD=JUPITER        | STD=EUROPA                        |               | NOT OCC OF EUROPA-ECLIPSE BY JUPITER FROM EARTH, SEP OF EUROPA-ECLIPSE JUPITER FROM EARTH GT 5", SEP OF EUROPA-ECLIPSE CALLISTO FROM EARTH GT 5", SEP OF EUROPA-ECLIPSE IO FROM EARTH GT 5", SEP OF EUROPA-ECLIPSE GANYMEDE FROM EARTH GT 5", ECL U FULL OF EUROPA BY JUPITER FROM EARTH | EARTH                   |                                                   |                                                                                                                          |  |                              |           |  |  |  |
| Comments: Description=Europa<br>Extended=YES |                                                                              |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   |                                                                                                                          |  |                              |           |  |  |  |
| Exposures                                    | #                                                                            | Label                                                                                                                                                                                                                                   | Target             | Config,Mode,Aperture              | Spectral Els. | Opt. Params.                                                                                                                                                                                                                                                                             | Special Reqs.           | Groups                                            | Exp. Time (Total)/[Actual Dur.]                                                                                          |  |                              | Orbit     |  |  |  |
|                                              | 1                                                                            |                                                                                                                                                                                                                                         | (6) EUROPA-ECLIPSE | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F656N         | FLASH=11                                                                                                                                                                                                                                                                                 | GS ACQ SCENARIO BASE1B3 | Pattern 1, Exps 1-1 in Eclipse imaging 2 (20) (1) | 250 Secs (1056 Secs)                                                                                                     |  |                              |           |  |  |  |
|                                              |                                                                              |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   | [==>264.0 Secs (Pattern 1)]<br>[==>264.0 Secs (Pattern 2)]<br>[==>264.0 Secs (Pattern 3)]<br>[==>264.0 Secs (Pattern 4)] |  |                              | [1]       |  |  |  |
|                                              | 2                                                                            |                                                                                                                                                                                                                                         | (6) EUROPA-ECLIPSE | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F631N         | FLASH=11                                                                                                                                                                                                                                                                                 |                         | Pattern 1, Exps 2-2 in Eclipse imaging 2 (20) (1) | 250 Secs (1056 Secs)                                                                                                     |  |                              |           |  |  |  |
|                                              |                                                                              |                                                                                                                                                                                                                                         |                    |                                   |               |                                                                                                                                                                                                                                                                                          |                         |                                                   | [==>264.0 Secs (Pattern 1)]<br>[==>264.0 Secs (Pattern 2)]<br>[==>264.0 Secs (Pattern 3)]<br>[==>264.0 Secs (Pattern 4)] |  |                              | [1]       |  |  |  |



# Proposal 15419 - Eclipse H-alpha narrow 2 (21) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habit...

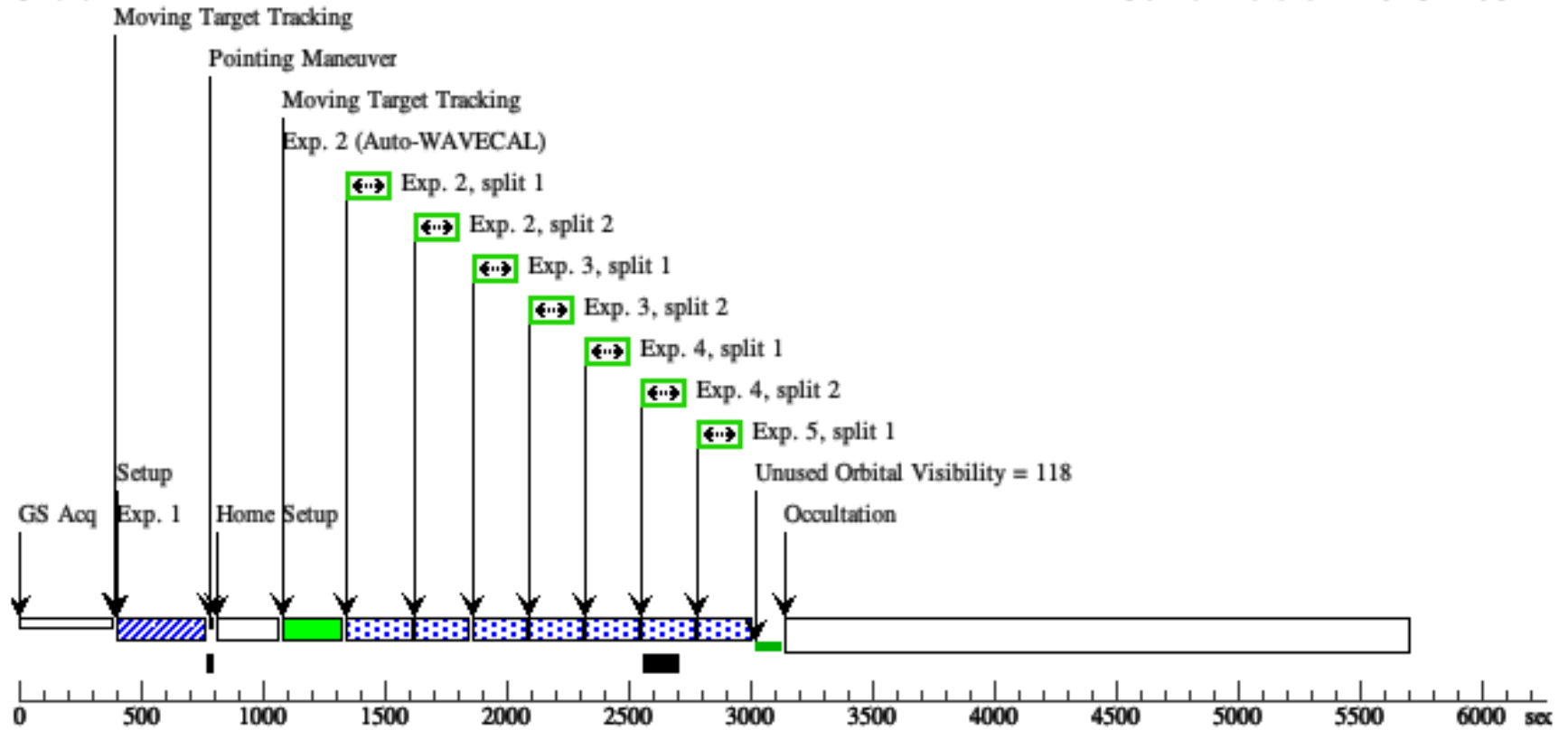
|                      |                                                                                                                                                             |                |             |            |         |                                                                                                                                                                                                                                                                                                                           |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visit                | <b>Proposal 15419, Eclipse H-alpha narrow 2 (21), completed</b> <span>Wed Feb 12 17:01:45 GMT 2020</span>                                                   |                |             |            |         |                                                                                                                                                                                                                                                                                                                           |
|                      | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: BETWEEN 30-MAR-2019:14:45:00 AND 30-MAR-2019:17:00:00 |                |             |            |         |                                                                                                                                                                                                                                                                                                                           |
| Solar System Targets | #                                                                                                                                                           | Name           | Level 1     | Level 2    | Level 3 | Window                                                                                                                                                                                                                                                                                                                    |
|                      | (6)                                                                                                                                                         | EUROPA-ECLIPSE | STD=JUPITER | STD=EUROPA |         | NOT OCC OF EUROPA-ECLIPSE<br>BY JUPITER FROM EARTH,<br>SEP OF EUROPA-ECLIPSE<br>JUPITER FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE<br>CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE IO<br>FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE<br>GANYMEDE FROM EARTH GT 5",<br>ECL U FULL OF EUROPA BY<br>JUPITER FROM EARTH |
|                      | Comments: Description=Europa<br>Extended=YES                                                                                                                |                |             |            |         |                                                                                                                                                                                                                                                                                                                           |
| Solar System Targets | (8)                                                                                                                                                         | IO-ACQ         | STD=JUPITER | STD=IO     |         | NOT OCC OF IO-ACQ BY JUPITER<br>FROM EARTH,<br>SEP OF IO-ACQ JUPITER FROM<br>EARTH GT 10",<br>SEP OF IO-ACQ CALLISTO FROM<br>EARTH GT 5",<br>SEP OF IO-ACQ EUROPA FROM<br>EARTH GT 5",<br>SEP OF IO-ACQ GANYMEDE<br>FROM EARTH GT 5"                                                                                      |
|                      | Comments: Description=IO<br>Extended=YES                                                                                                                    |                |             |            |         |                                                                                                                                                                                                                                                                                                                           |
|                      |                                                                                                                                                             |                |             |            |         |                                                                                                                                                                                                                                                                                                                           |

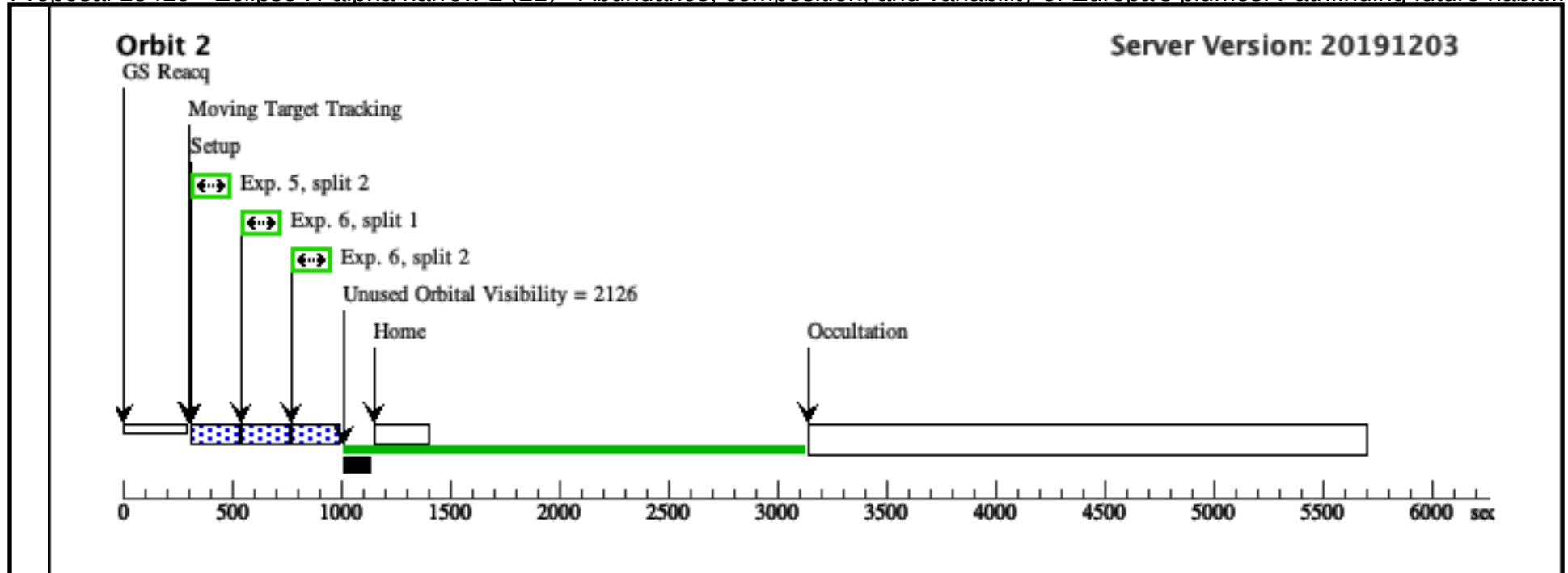
Proposal 15419 - Eclipse H-alpha narrow 2 (21) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habit...

| Exposures | #                                                                                                                                                                                                               | Label       | Target              | Config,Mode,Aperture      | Spectral Els.   | Opt. Params.                                                        | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.]                         | Orbit      |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------|---------------------------|-----------------|---------------------------------------------------------------------|---------------|--------|---------------------------------------------------------|------------|
|           | 1                                                                                                                                                                                                               | Acquisition | (8) IO-ACQ          | STIS/CCD, ACQ, F28X50LP   | MIRROR          | CHECKBOX=21;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER |               |        | 0.3 Secs (0.3 Secs)<br>[==>]                            | [1]        |
|           | Comments: Checkbox parameter selected for size of Io in the periods of Feb/Mar 2018 & July/Aug 2018. If closer to Jupiter opposition 2018 (April - June) or other moon, the checkbox size needs to be adjusted. |             |                     |                           |                 |                                                                     |               |        |                                                         |            |
|           | 2                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X0.5E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 376 Secs (376 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]        |
|           | 3                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X0.5E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 376 Secs (376 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]        |
|           | 4                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X0.5E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 376 Secs (376 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]        |
|           | 5                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X0.5E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 376 Secs (376 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [1]<br>[2] |
|           | 6                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X0.5E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 376 Secs (376 Secs)<br>[==>(Split 1)]<br>[==>(Split 2)] | [2]        |
|           |                                                                                                                                                                                                                 |             |                     |                           |                 |                                                                     |               |        |                                                         |            |
|           |                                                                                                                                                                                                                 |             |                     |                           |                 |                                                                     |               |        |                                                         |            |

## Orbit 1

Server Version: 20191203



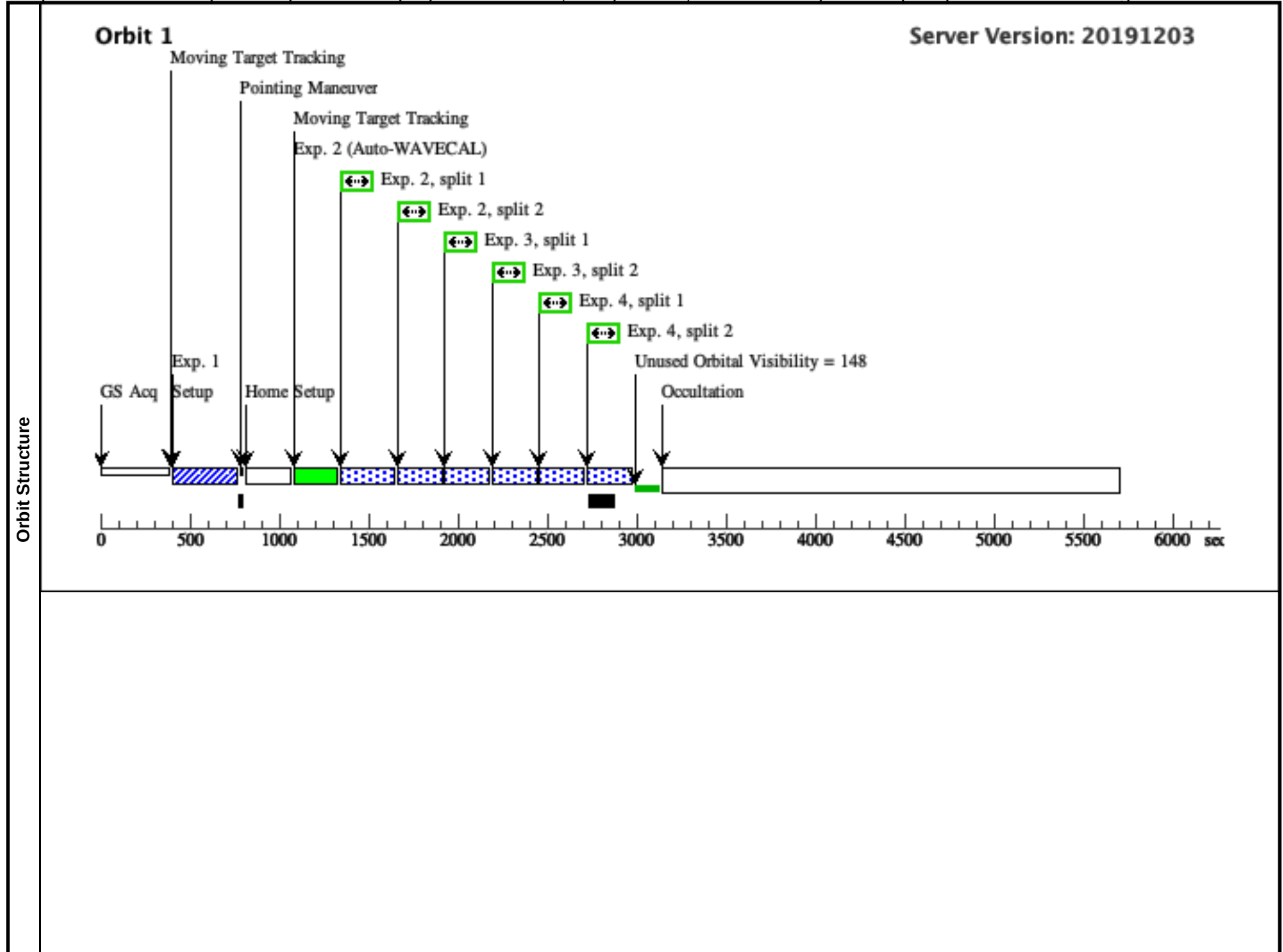


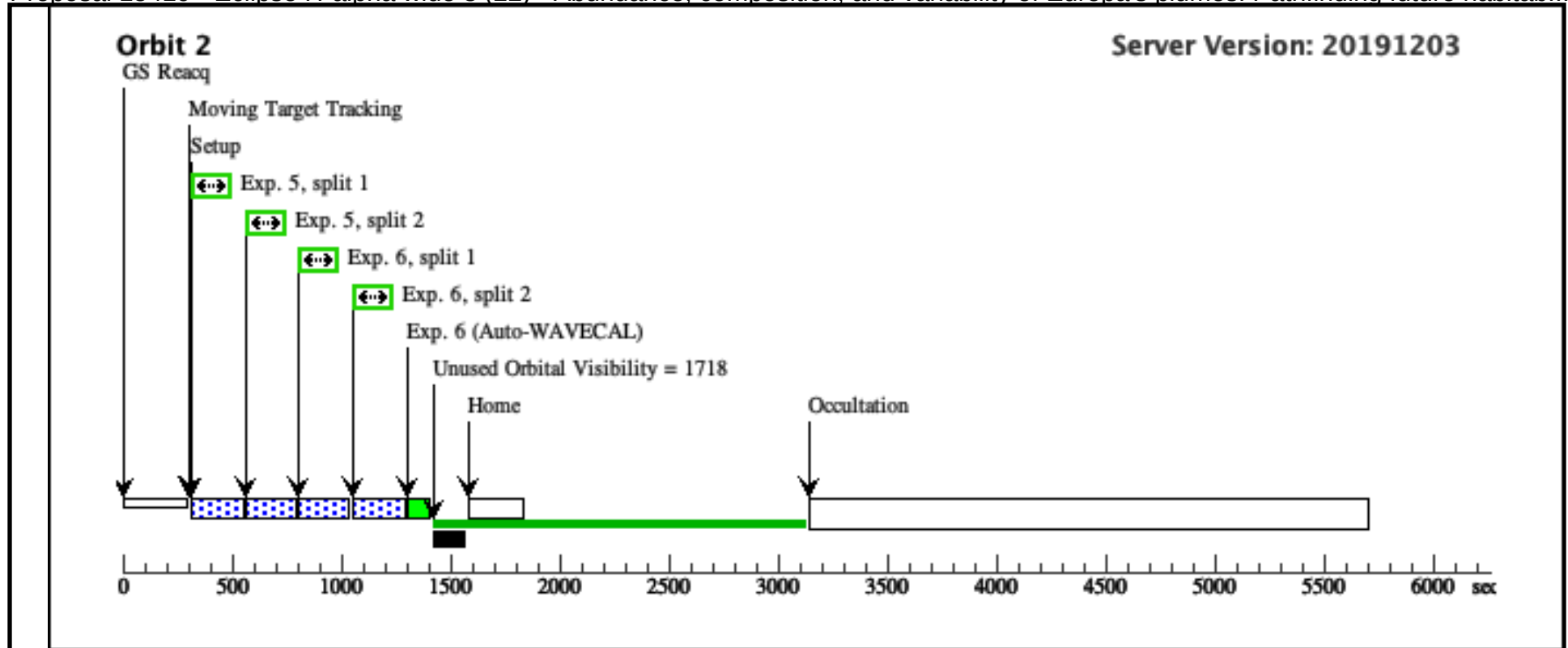
# Proposal 15419 - Eclipse H-alpha wide 3 (22) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitab...

|                      |                                                                                                              |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------------------|----------------|-------------|------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visit                | <b>Proposal 15419, Eclipse H-alpha wide 3 (22), completed</b> <span>Wed Feb 12 17:01:45 GMT 2020</span>      |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: (none) |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | #                                                                                                            | Name           | Level 1     | Level 2    | Level 3 | Window                                                                                                                                                                                                                                                                                                  |
|                      | (6)                                                                                                          | EUROPA-ECLIPSE | STD=JUPITER | STD=EUROPA |         | NOT OCC OF EUROPA-ECLIPSE BY JUPITER FROM EARTH,<br>SEP OF EUROPA-ECLIPSE JUPITER FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE CALLISTO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE IO FROM EARTH GT 5",<br>SEP OF EUROPA-ECLIPSE GANYMEDE FROM EARTH GT 5",<br>ECL U FULL OF EUROPA BY JUPITER FROM EARTH |
|                      | Comments: Description=Europa<br>Extended=YES                                                                 |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
| Solar System Targets | (8)                                                                                                          | IO-ACQ         | STD=JUPITER | STD=IO     |         | NOT OCC OF IO-ACQ BY JUPITER FROM EARTH,<br>SEP OF IO-ACQ JUPITER FROM EARTH GT 10",<br>SEP OF IO-ACQ CALLISTO FROM EARTH GT 5",<br>SEP OF IO-ACQ EUROPA FROM EARTH GT 5",<br>SEP OF IO-ACQ GANYMEDE FROM EARTH GT 5"                                                                                   |
|                      | Comments: Description=IO<br>Extended=YES                                                                     |                |             |            |         |                                                                                                                                                                                                                                                                                                         |
|                      |                                                                                                              |                |             |            |         |                                                                                                                                                                                                                                                                                                         |

Proposal 15419 - Eclipse H-alpha wide 3 (22) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitab...

| Exposures | #                                                                                                                                                                                                               | Label       | Target              | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.                                                        | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.]                                               | Orbit |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------|-------------------------|-----------------|---------------------------------------------------------------------|---------------|--------|-------------------------------------------------------------------------------|-------|
|           | 1                                                                                                                                                                                                               | Acquisition | (8) IO-ACQ          | STIS/CCD, ACQ, F28X50LP | MIRROR          | CHECKBOX=21;<br>ACQTYPE=DIFFUSE;<br>DIFFUSE-CENTER=GEOMETRIC-CENTER |               |        | 0.3 Secs (0.3 Secs)<br>[==>]                                                  | [1]   |
|           | Comments: Checkbox parameter selected for size of Io in the periods of Feb/Mar 2018 & July/Aug 2018. If closer to Jupiter opposition 2018 (April - June) or other moon, the checkbox size needs to be adjusted. |             |                     |                         |                 |                                                                     |               |        |                                                                               |       |
|           | 2                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 400 Secs (444 Secs)<br>[==>222.0 Secs (Split 1)]<br>[==>222.0 Secs (Split 2)] | [1]   |
|           | 3                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 400 Secs (444 Secs)<br>[==>222.0 Secs (Split 1)]<br>[==>222.0 Secs (Split 2)] | [1]   |
|           | 4                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 400 Secs (444 Secs)<br>[==>222.0 Secs (Split 1)]<br>[==>222.0 Secs (Split 2)] | [1]   |
|           | 5                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 400 Secs (406 Secs)<br>[==>203.0 Secs (Split 1)]<br>[==>203.0 Secs (Split 2)] | [2]   |
|           | 6                                                                                                                                                                                                               |             | (6) EUROPA-ECLIP SE | STIS/CCD, ACCUM, 52X2E1 | G750M<br>6581 A | GAIN=1;<br>CR-SPLIT=2                                               |               |        | 400 Secs (406 Secs)<br>[==>203.0 Secs (Split 1)]<br>[==>203.0 Secs (Split 2)] | [2]   |





# Proposal 15419 - Dark (D1) - Abundance, composition, and variability of Europa's plumes: Pathfinding future habitability investigations

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                              |               |                     |               |        |                                 |       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|------------------------------|---------------|---------------------|---------------|--------|---------------------------------|-------|
| Visit           | Proposal 15419, Dark (D1), withdrawn <span style="float: right;">Wed Feb 12 17:01:45 GMT 2020</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |        |                              |               |                     |               |        |                                 |       |
|                 | <b>Diagnostic Status: Error</b><br>Scientific Instruments: STIS/FUV-MAMA<br>Special Requirements: (none)<br><i>Comments: This visit is being used to turn on the high voltage for visit 14.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                              |               |                     |               |        |                                 |       |
| Diagnostics     | (Exposure 1 (Dark (D1))) Error (Form): DEF is not a valid selection.<br>(Exposure 1 (Dark (D1))) Error (Form): Illegal selection: DEF.<br>(Exposure 1 (Dark (D1))) Error (Form): Target DARK is no longer a valid selection<br>(Exposure 1 (Dark (D1))) Error (Form): This attribute cannot have this value due to other choices: Aperture=DEF.<br>This value is by default illegal.<br>(Exposure 1 (Dark (D1))) Error (Form): This attribute cannot have this value due to other choices: Spectral_Element=DEF.<br>This value is by default illegal.<br>(Exposure 1 (Dark (D1))) Error (Form): This attribute is not allowed to have this value: Calibration_Target = DARK<br>It is a Restricted option and can only be used in an engineering proposal. |       |        |                              |               |                     |               |        |                                 |       |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                              |               |                     |               |        |                                 |       |
| Exposures       | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Label | Target | Config,Mode,Aperture         | Spectral Els. | Opt. Params.        | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       | DARK   | STIS/FUV-MAMA, TIME-TAG, DEF | DEF           | BUFFER-TIME=65<br>0 |               |        | 1300 Secs (1300 Secs)<br>[==>]  | [1]   |
| Orbit Structure | <b>Orbit 1</b> <span style="float: right;">Server Version: 20191203</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |        |                              |               |                     |               |        |                                 |       |
|                 | Unused Orbital Visibility = 3142<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |        |                              |               |                     |               |        |                                 |       |