



## 11292 - The Ring Plane Crossings of Uranus in 2007

Cycle: 16, Proposal Category: GO

(Availability Mode: AVAILABLE)

### INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Mark R. Showalter (PI)</b>	<b>SETI Institute</b>	<b>mshowalter@seti.org</b>
Dr. Jack J. Lissauer (CoI)	NASA Ames Research Center	jlissauer@mail.arc.nasa.gov
Dr. Richard G. French (CoI)	Wellesley College	rfrench@wellesley.edu
Dr. Douglas Hamilton (CoI)	University of Maryland	hamilton@astro.umd.edu
Dr. Philip Nicholson (CoI)	Cornell University	pdn2@cornell.edu

### 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>
71	(3) URANUS-WITH-MAB-3ORBITS	WFPC2	3	21-May-2007 17:29:16.0	yes
72	(3) URANUS-WITH-MAB-3ORBITS	WFPC2	3	21-May-2007 17:29:36.0	yes
73	(3) URANUS-WITH-MAB-3ORBITS	WFPC2	3	21-May-2007 17:29:48.0	yes
7C	(1) URANUS-NO-MOONS-NEARBY	WFPC2	3	21-May-2007 17:30:05.0	yes
74	(1) URANUS-NO-MOONS-NEARBY	WFPC2	3	21-May-2007 17:30:20.0	yes
81	(2) URANUS-WITH-MAB-1ORBIT	WFPC2	1	21-May-2007 17:30:27.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
82	(2) URANUS-WITH-MAB-1ORBIT	WFPC2	1	21-May-2007 17:30:32.0	yes
8B	(1) URANUS-NO-MOONS-NEARBY	WFPC2	1	21-May-2007 17:30:35.0	yes
83	(2) URANUS-WITH-MAB-1ORBIT	WFPC2	1	21-May-2007 17:30:39.0	yes
8C	(1) URANUS-NO-MOONS-NEARBY	WFPC2	1	21-May-2007 17:30:42.0	yes
84	(1) URANUS-NO-MOONS-NEARBY	WFPC2	1	21-May-2007 17:30:46.0	yes
8D	(1) URANUS-NO-MOONS-NEARBY	WFPC2	1	21-May-2007 17:30:50.0	yes
8E	(2) URANUS-WITH-MAB-1ORBIT	WFPC2	1	21-May-2007 17:30:53.0	yes
8F	(2) URANUS-WITH-MAB-1ORBIT	WFPC2	1	21-May-2007 17:30:57.0	yes

24 Total Orbits Used

## ABSTRACT

The rings of Uranus turn edge-on to Earth in May and August 2007. In between, we will have a rare opportunity to see the unlit face of the rings. With the nine optically thick rings essentially invisible, we will observe features and phenomena that are normally lost in their glare. We will use this opportunity to search thoroughly for the embedded "shepherd" moons long believed to confine the edges of the rings, setting a mass limit roughly 10 times smaller than that of the smallest shepherd currently known, Cordelia. We will measure the vertical thicknesses of the rings and study the faint dust belts only known to exist from a single Voyager image. We will also study the colors of the newly-discovered faint, outer rings; recent evidence suggests that one ring is red and the other blue, implying that each ring is dominated by a different set of physical processes. We will employ near-edge-on photometry from 2006 and 2007 to derive the particle filling factor within the rings, to observe how ring epsilon responds to the "traffic jam" as particles pass through its narrowest point, and to test the latest models for preserving eccentricities and apse alignment within the rings. Moreover, this data set will allow us to continue monitoring the motions of the inner moons, which have been found to show possibly chaotic orbital variations; by nearly doubling the time span of the existing Hubble astrometry, the details of the variations will become much clearer.

## **OBSERVING DESCRIPTION**

We will center the PC on Uranus and orient the rings as close as possible to the x-axis. With this orientation, we can saturate the planet and still obtain good detections of the rings and moons, because saturated pixels bloom along the PC y-axis. Visits must be timed to exclude the brightest moons---Ariel, Umbriel, Titania and Oberon. Miranda moves too quickly to be completely excluded, but we avoid times when it overlaps the main ring system. Some visits are specifically timed so that Mab is visible, so that we can study its orbital libration.

In spring 2007 we will observe the rings with the PC during the brief window when Earth is on the north side of the ring plane but the Sun is still shining on the south side; the main rings will be especially dark during this period, potentially making fainter rings and smaller moons detectable. We will carry out four visits of three orbits each. Each orbit will begin and end with long, F606W exposures for moon tracking. One or two exposures in the middle of each orbit will obtain ring color using F450W and F814W. We will also obtain a small number of unsaturated images of the planet. We will position Uranus at slightly different locations at each visit so that any optical flaws tied to the PC pixel grid do not always overlap the rings. Horizontal dither shifts of  $\sim 2.5$  pixels between each of the three orbits will also be used to refine radial resolution on the rings.

During August-September 2007 we will obtain photometry of the rings and moons approaching opposition, while the rings are open to Earth by only a fraction of a degree. Four single-orbit visits will sample phase angles of approximately 0.5, 0.2, 0.1 and 0.05 degrees. Filters F450W, F606W and F814W will be used to obtain color information. These visits will employ a 2.5-pixel dither shift along the x-axis to improve radial resolution on the rings.

Proposal 11292 - Visit 71 - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:30:59 GMT 2007

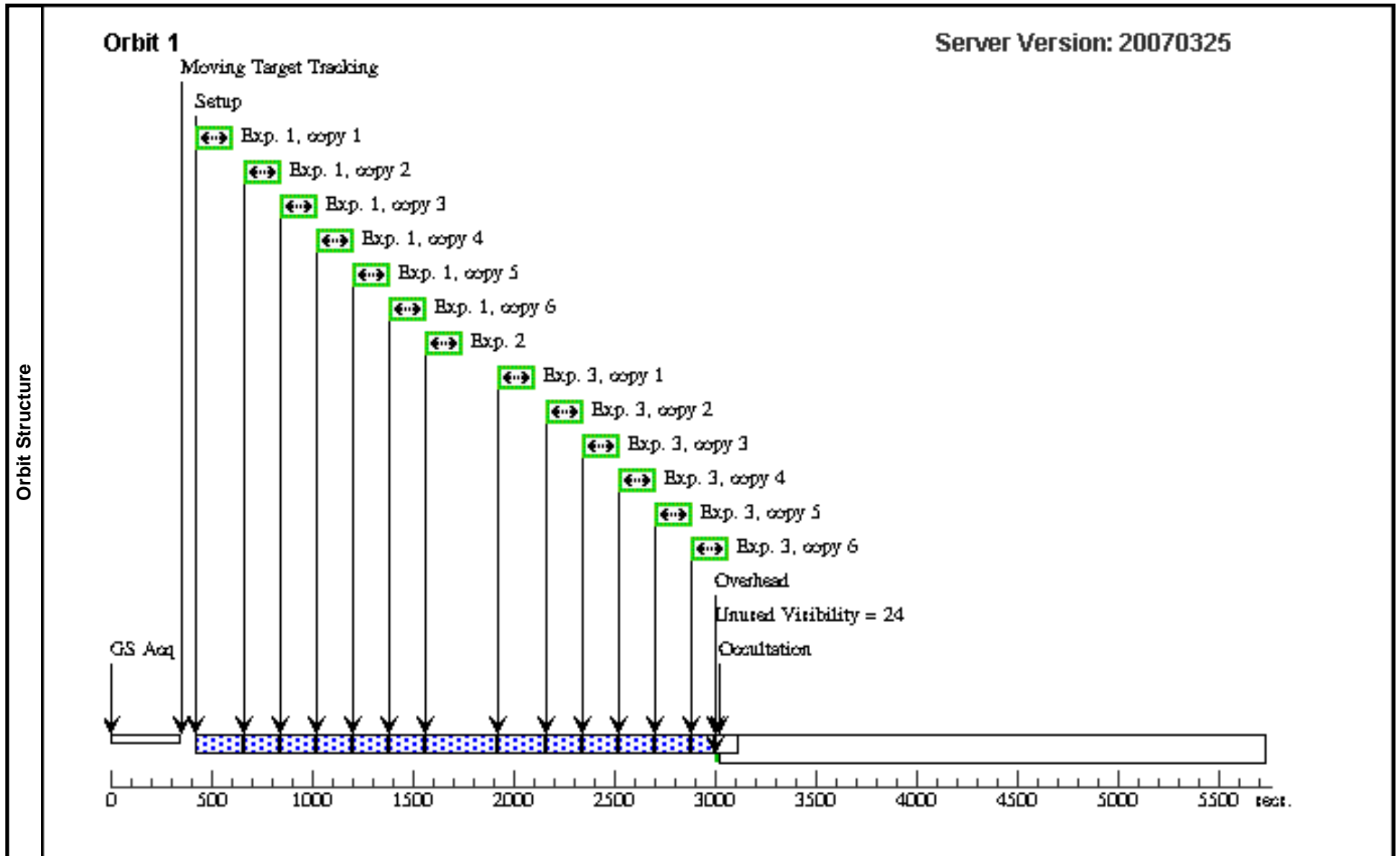
Visit	Proposal 11292, Visit 71 Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: SCHED 100%; ORIENT 210.0D TO 232.0 D; BETWEEN 25-JUN-2007:00:00:00 AND 15-JUL-2007:00:00:00 Comments: Extended search to study rings and moons, including Mab. Uranus positioned 2" below and left of the PC center point, with 2.5-pixel dither shifts along the x-axis between each orbit. Ring plane oriented <= 22 degrees clockwise from the x-axis, which is as close to the x-axis as ORIENT constraints allow.					
	Solar System Targets	#	Name	Level 1	Level 2	Level 3
(3)		URANUS-WITH-MAB STD=URANUS -3ORBITS				
Comments: Uranus with Mab crossing maximum elongation during a 3-orbit visit. (Mab covers 64 degrees in this time, so we require that Mab remain within 60 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.						

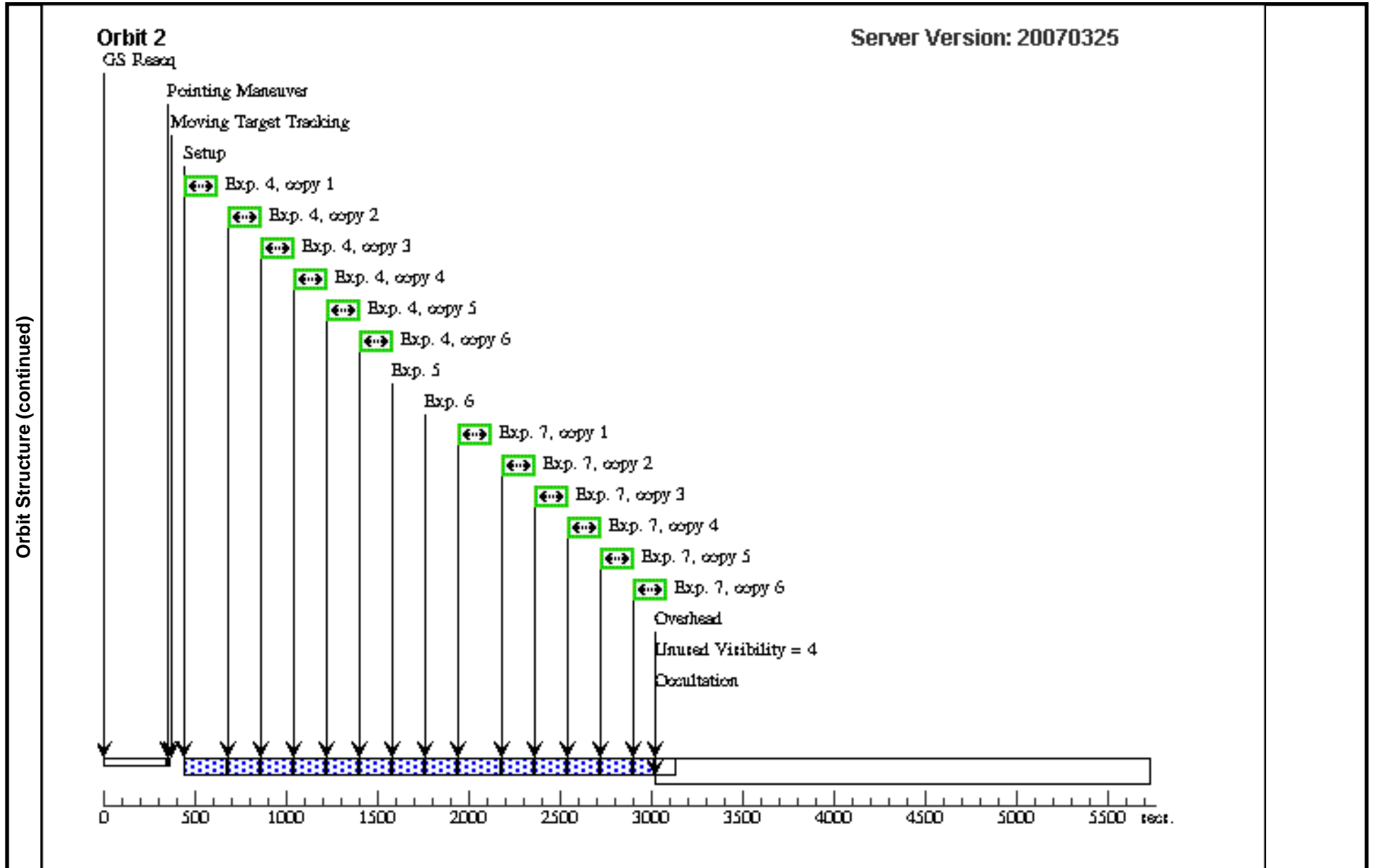
Proposal 11292 - Visit 71 - The Ring Plane Crossings of Uranus in 2007

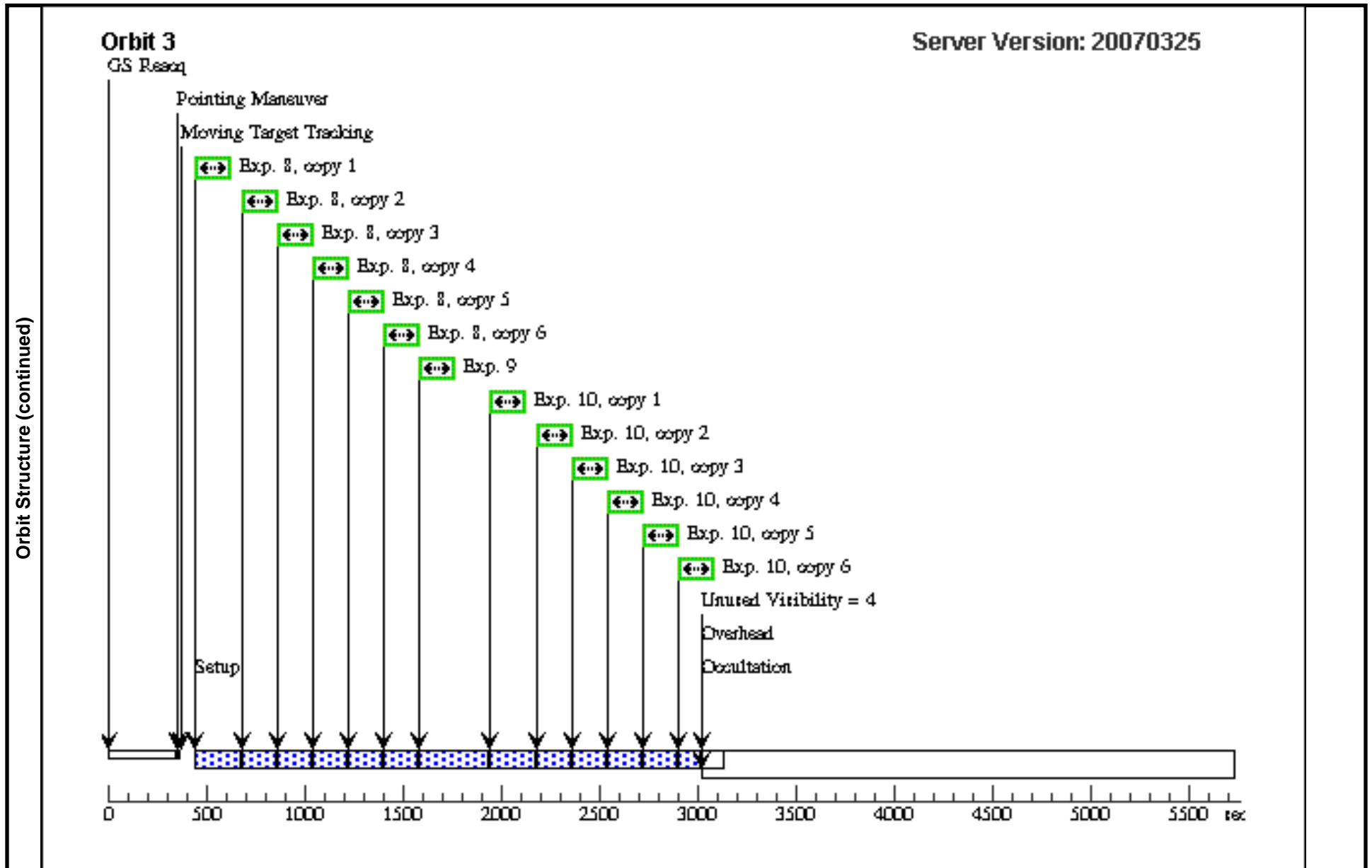
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2.115,-2	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	2	F814W, 200 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 1	Sequence 1-3 Non-Int	200.0 Secs [==>]	[1]
	3	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 1	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	4	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2,-2	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	5	F814W, 2 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	2.0 Secs [==>]	[2]
	6	F450W, 4 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	4.0 Secs [==>]	[2]
	7	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]

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Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	8	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -1.885,- 2	Sequence 8-10 Non-I nt	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]
	9	F450W, 200 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 8	Sequence 8-10 Non-I nt	200.0 Secs [==>]	[3]
	10	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 8	Sequence 8-10 Non-I nt	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]







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Mon May 21 21:31:01 GMT 2007

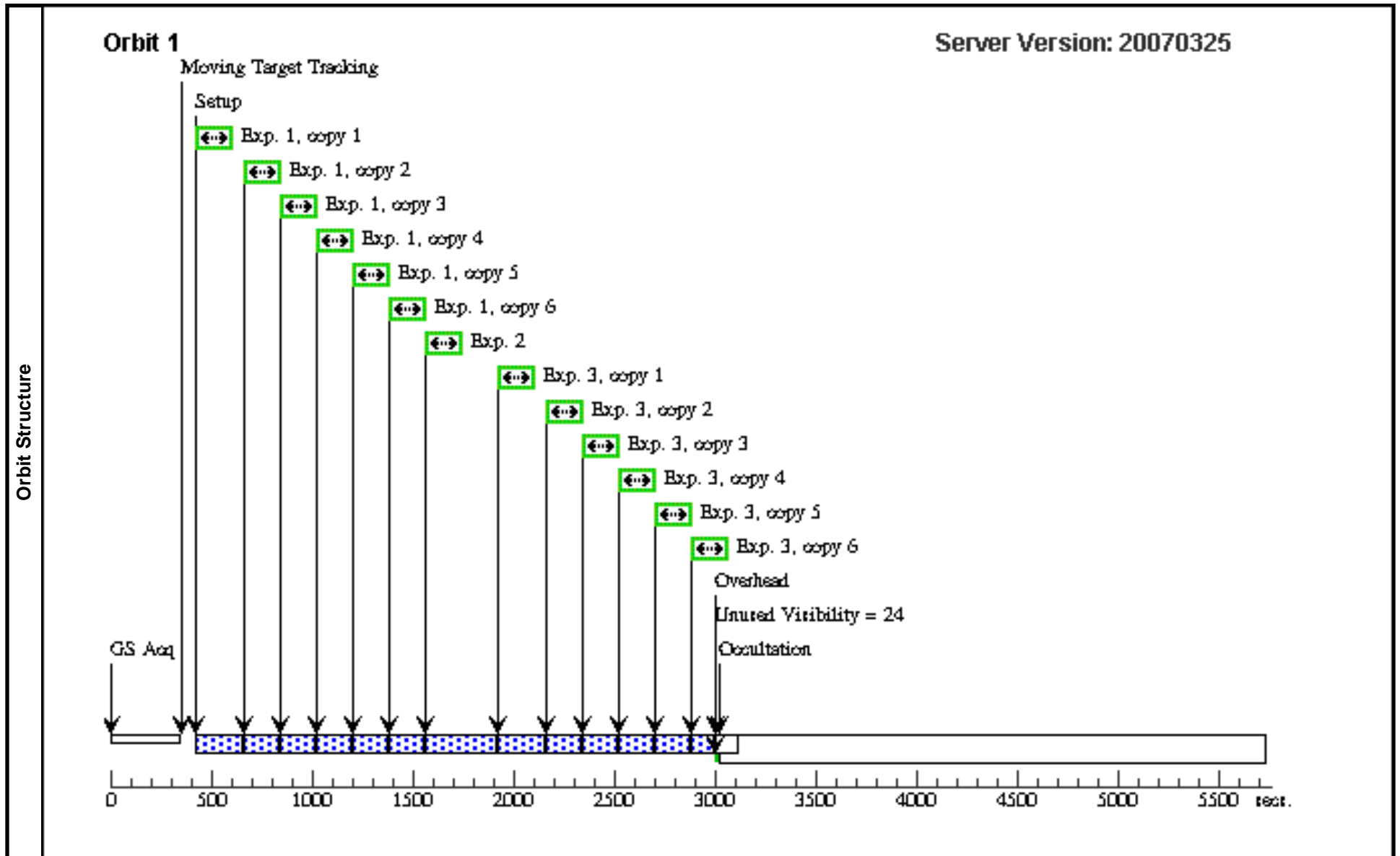
Visit	Proposal 11292, Visit 72 Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: SCHED 100%; ORIENT 210.0D TO 228.0 D; BETWEEN 15-JUL-2007:00:00:00 AND 05-AUG-2007:00:00:00 Comments: Extended search to study rings and moons, including Mab. Uranus positioned 2" above and right of the PC center point, with 2.5-pixel dither shifts along the x-axis between each orbit. Ring plane oriented <= 18 degrees clockwise from the x-axis, which is as close to the x-axis as ORIENT constraints allow.					
	Solar System Targets	#	Name	Level 1	Level 2	Level 3
(3)		URANUS-WITH-MAB STD=URANUS -3ORBITS				
Comments: Uranus with Mab crossing maximum elongation during a 3-orbit visit. (Mab covers 64 degrees in this time, so we require that Mab remain within 60 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.						

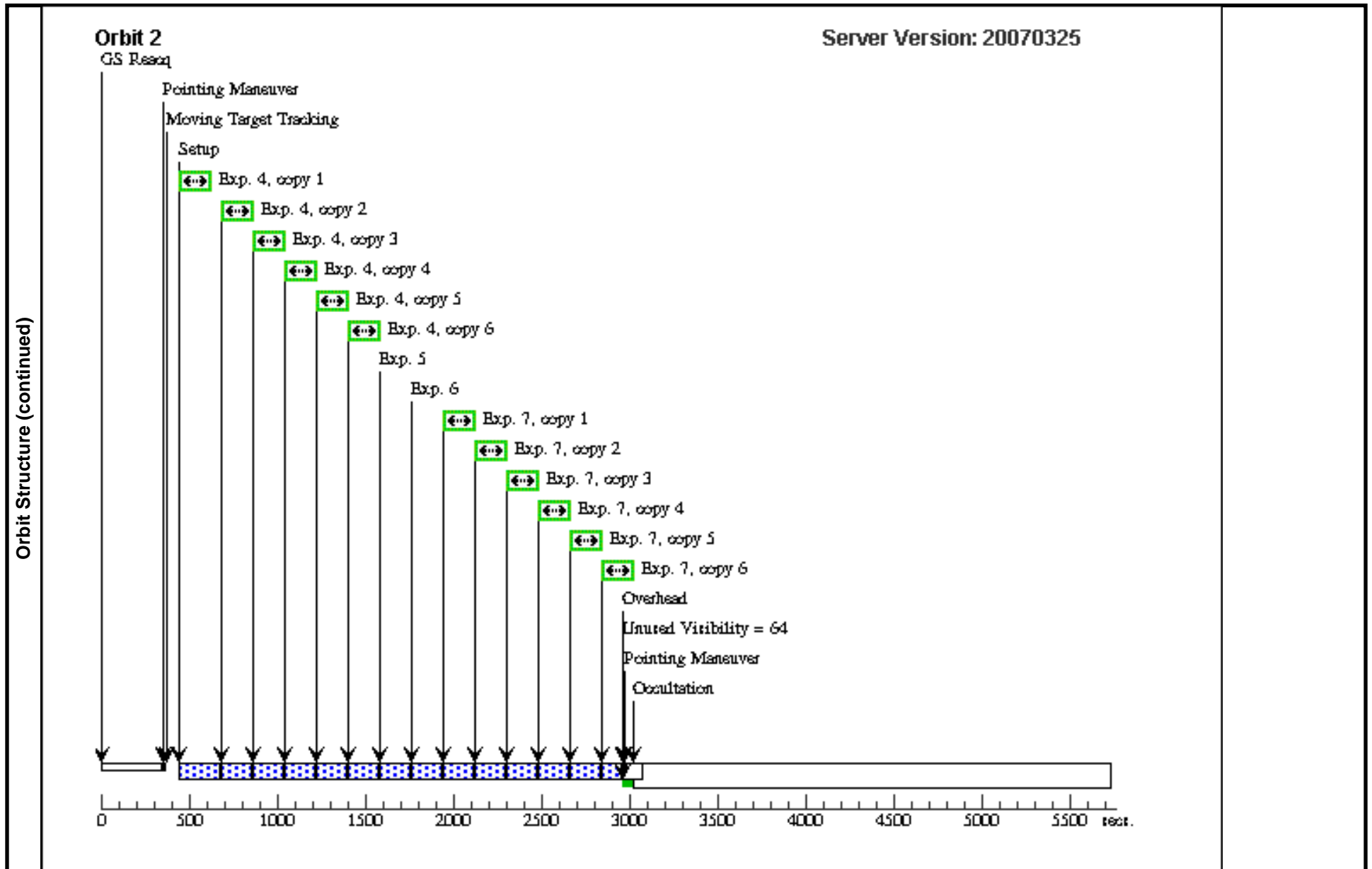
Proposal 11292 - Visit 72 - The Ring Plane Crossings of Uranus in 2007

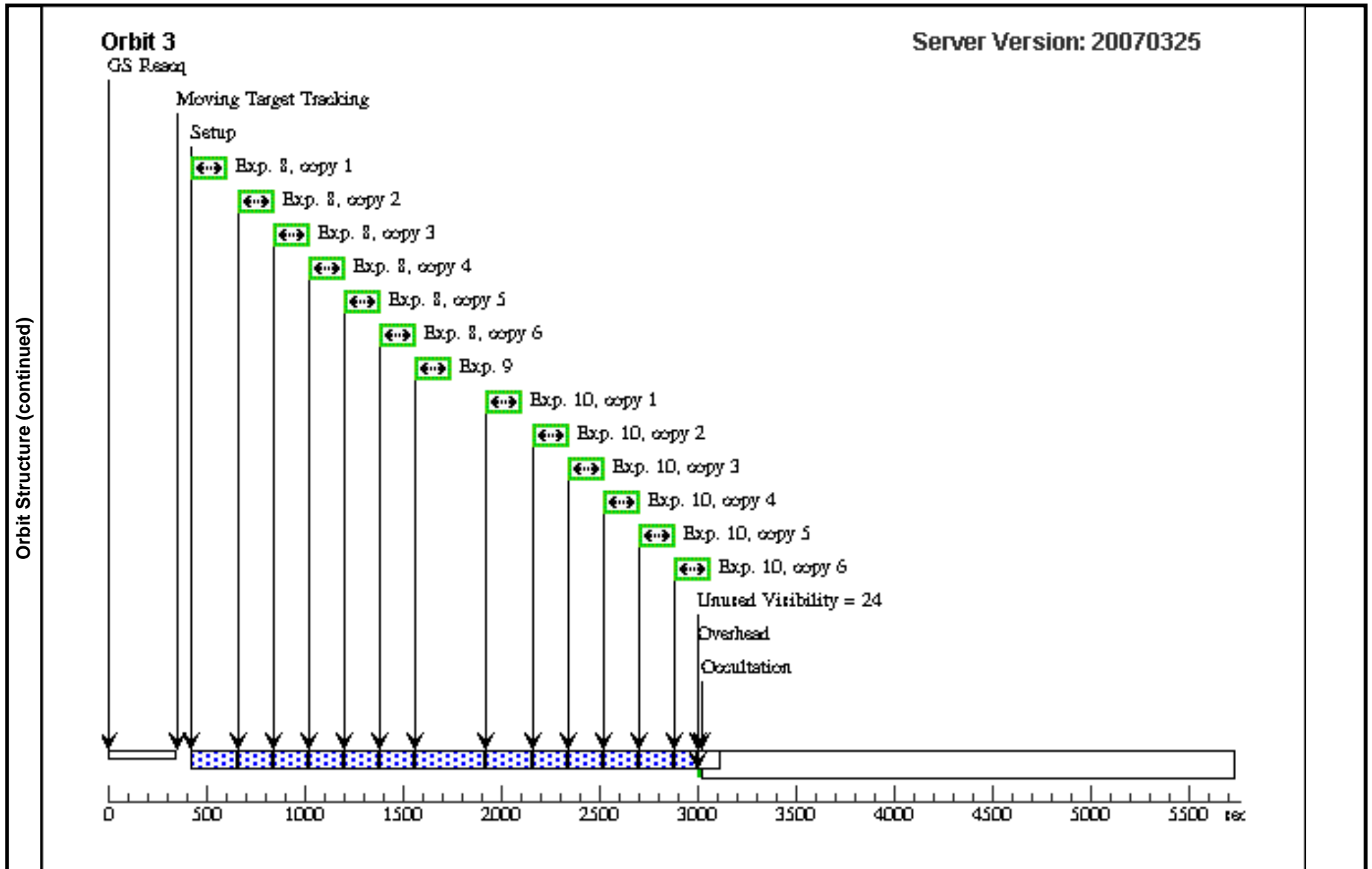
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 1.885,2	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	2	F814W, 200 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 1	Sequence 1-3 Non-Int	200.0 Secs [==>]	[1]
	3	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 1	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	4	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,2	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	5	F814W, 2 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	2.0 Secs [==>]	[2]
	6	F606W, 1 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	1.0 Secs [==>]	[2]
	7	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]

Proposal 11292 - Visit 72 - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	8	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2.115,2	Sequence 8-10 Non-I nt	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]
	9	F450W, 200 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 8	Sequence 8-10 Non-I nt	200.0 Secs [==>]	[3]
	10	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 8	Sequence 8-10 Non-I nt	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]







Proposal 11292 - Visit 73 - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:03 GMT 2007

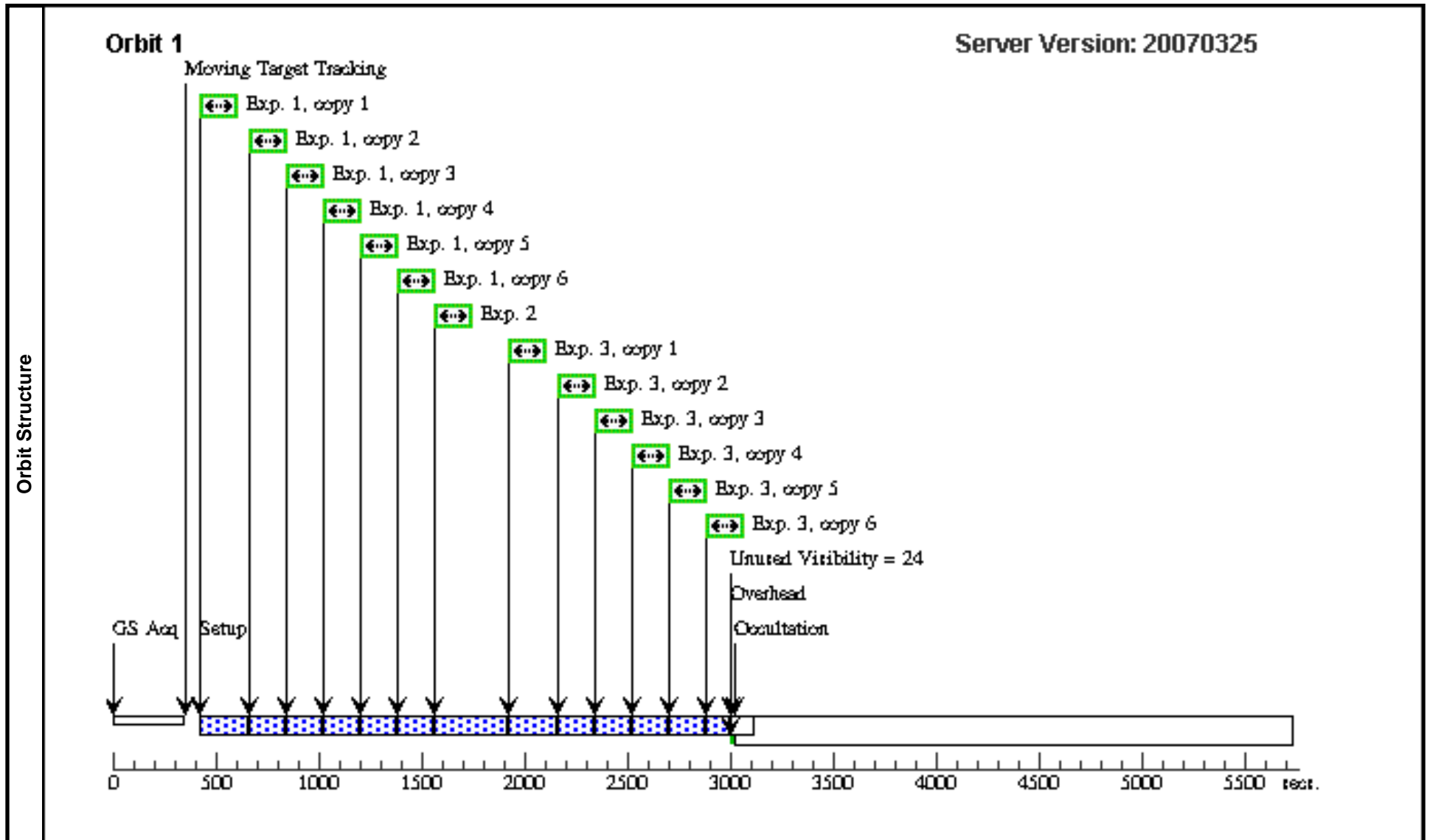
<b>Visit</b>	<p><b>Proposal 11292, Visit 73</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 227.0 D; BETWEEN 05-AUG-2007:00:00:00 AND 13-AUG-2007:00:00:00</p> <p><i>Comments: Extended search to study rings and moons, including Mab, with ring opening angle <math>\leq 0.3</math> degrees. Uranus positioned 2" above and left of the PC center point, with 2.5-pixel dither shifts along the x-axis between each orbit. Ring plane oriented <math>\leq 17</math> degrees clockwise from the x-axis, which is as close to the x-axis as ORIENT constraints allow.</i></p> <p><i>Note that this visit has limited scheduling opportunities according to APT. Visit 7C (marked ON HOLD), relaxes the OLG constraints on Mab and can be used as an alternative if this visit cannot be scheduled.</i></p>					
	<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
(3)		URANUS-WITH-MAB -3ORBITS	STD=URANUS			
<p><i>Comments: Uranus with Mab crossing maximum elongation during a 3-orbit visit. (Mab covers 64 degrees in this time, so we require that Mab remain within 60 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.</i></p>						

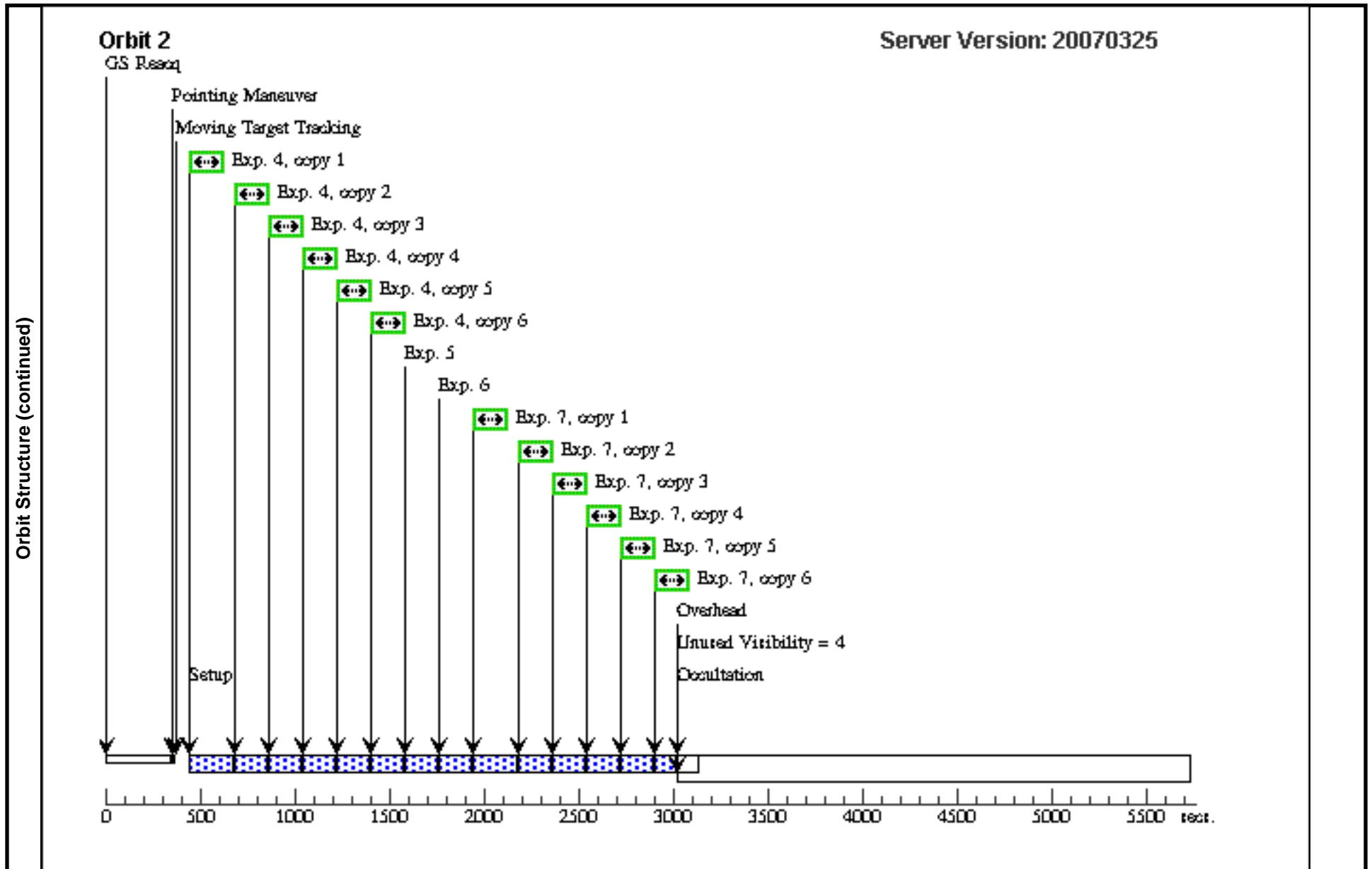
Proposal 11292 - Visit 73 - The Ring Plane Crossings of Uranus in 2007

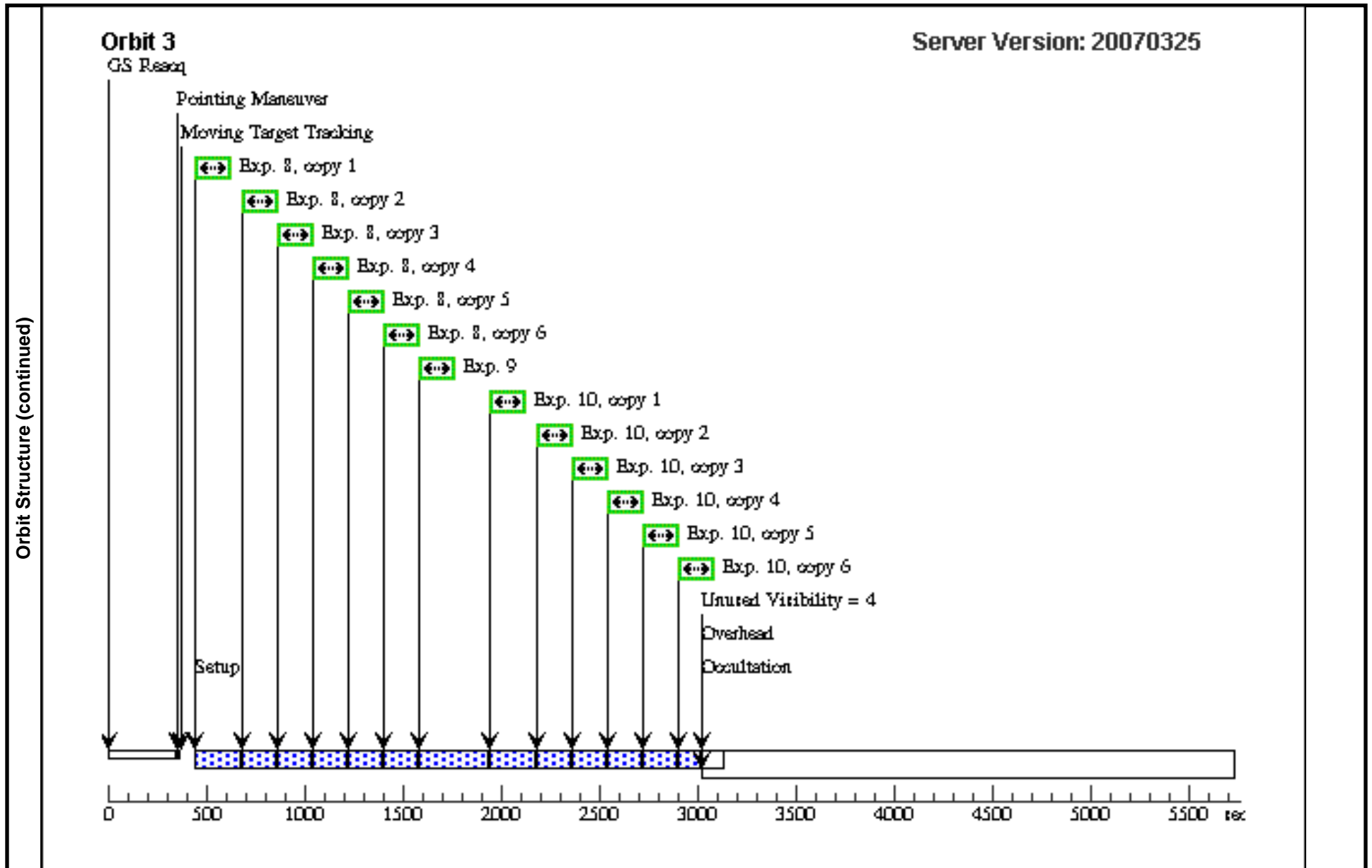
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
Exposures	1	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2.111,2	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	2	F814W, 200 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 1	Sequence 1-3 Non-Int	200.0 Secs [==>]	[1]
	3	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 1	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	4	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2,2	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	5	F814W, 2 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	2.0 Secs [==>]	[2]
	6	F450W, 4 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	4.0 Secs [==>]	[2]
	7	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]

Proposal 11292 - Visit 73 - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	8	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -1.889,2	Sequence 8-10 Non-I nt	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]
	9	F450W, 200 sec	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 8	Sequence 8-10 Non-I nt	200.0 Secs [==>]	[3]
	10	F606W, 100 sec x 6	(3) URANUS-WITH -MAB-3ORBITS	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 8	Sequence 8-10 Non-I nt	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]







Proposal 11292 - Visit 7C - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:04 GMT 2007

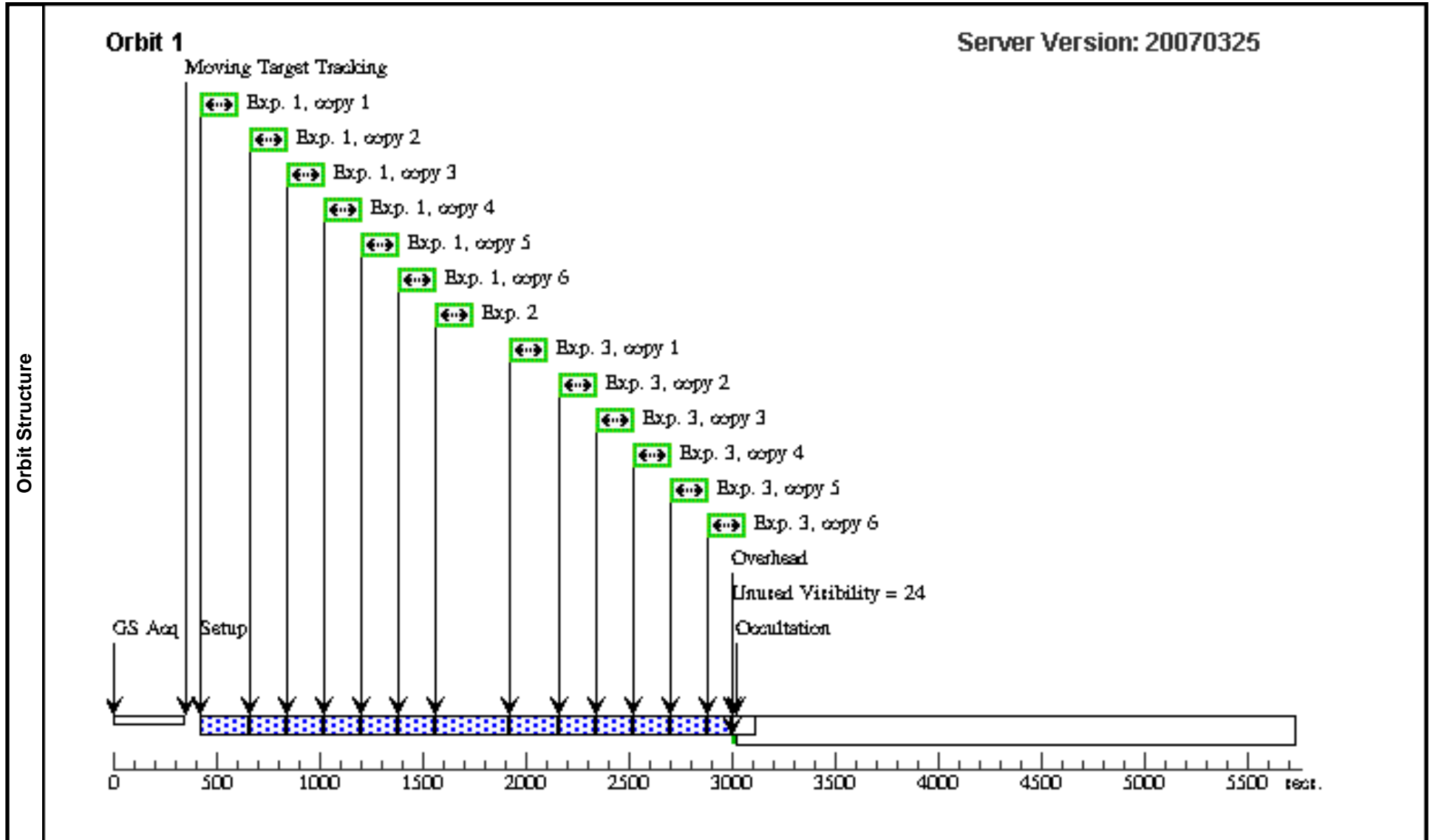
<b>Visit</b>	<p><b>Proposal 11292, Visit 7C</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 227.0 D; BETWEEN 05-AUG-2007:00:00:00 AND 13-AUG-2007:00:00:00; ON HOLD</p> <p><i>Comments: Extended search to study rings and moons, with ring opening angle &lt;= 0.3 degrees. Uranus positioned 2" above and left of the PC center point, with 2.5-pixel dither shifts along the x-axis between each orbit. Ring plane oriented &lt;= 17 degrees clockwise from the x-axis, which is as close to the x-axis as ORIENT constraints allow.</i></p> <p><i>This visit is ON HOLD as an alternative to Visit 73. It should be more schedulable because it has no OLG constraints on Mab. Please use in the event that Visit 73 is found to be unschedulable.</i></p> <p><i>On Hold Comments: To execute only if Visit 73 cannot be scheduled.</i></p>									
	<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>			
(1)		URANUS-NO-MOONS-NEARBY	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0				
<p><i>Comments: Uranus with Ariel, Umbriel, Titania and Oberon more than 100,000 km away in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system.</i></p>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F606W, 100 sec x 6	(1) URANUS-NO-MOONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2.111,2	Sequence 1-3 Non-Int	100.0 Secs X 6 [=>(Copy 1)] [=>(Copy 2)] [=>(Copy 3)] [=>(Copy 4)] [=>(Copy 5)] [=>(Copy 6)]	[1]

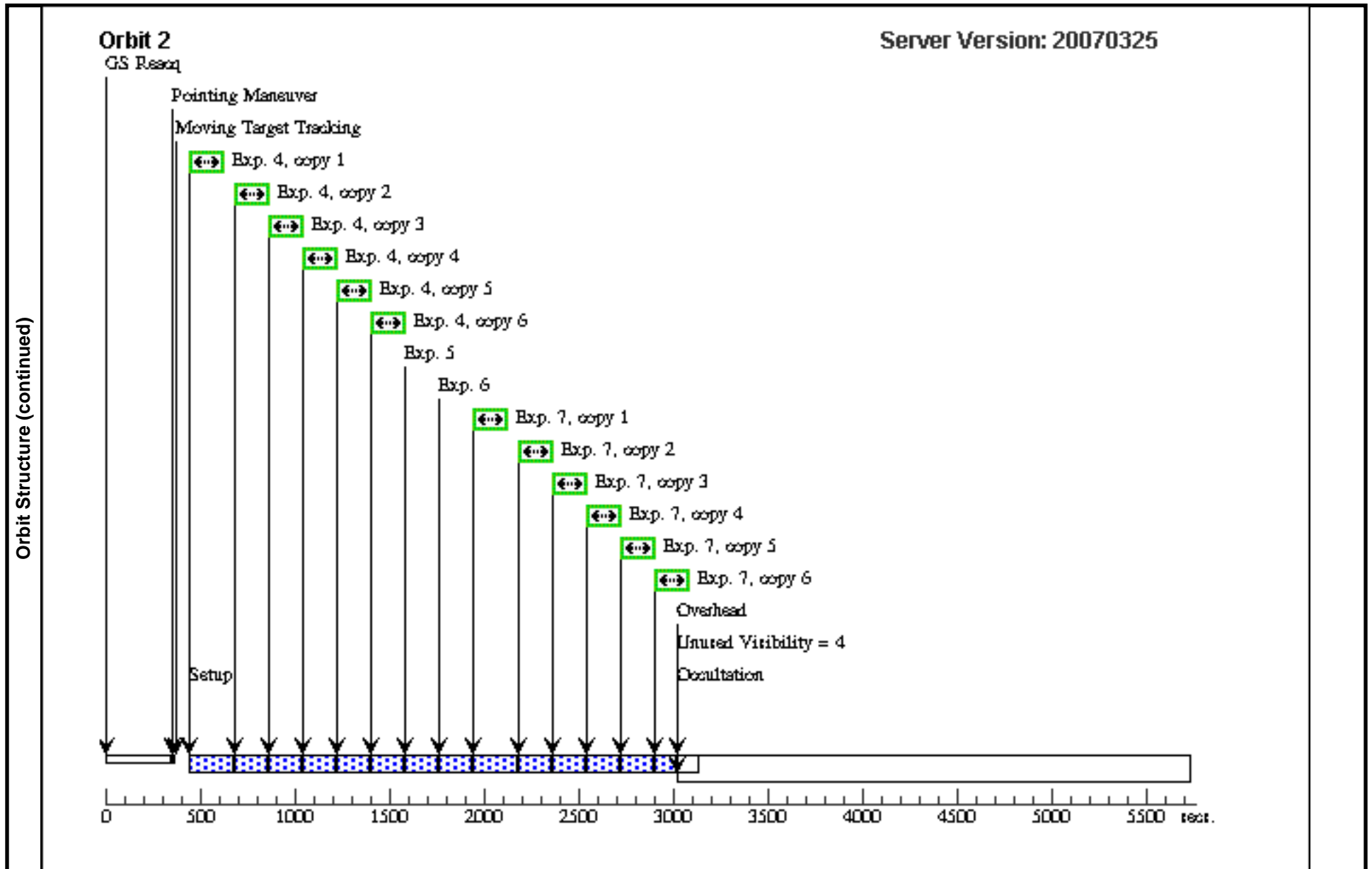
Proposal 11292 - Visit 7C - The Ring Plane Crossings of Uranus in 2007

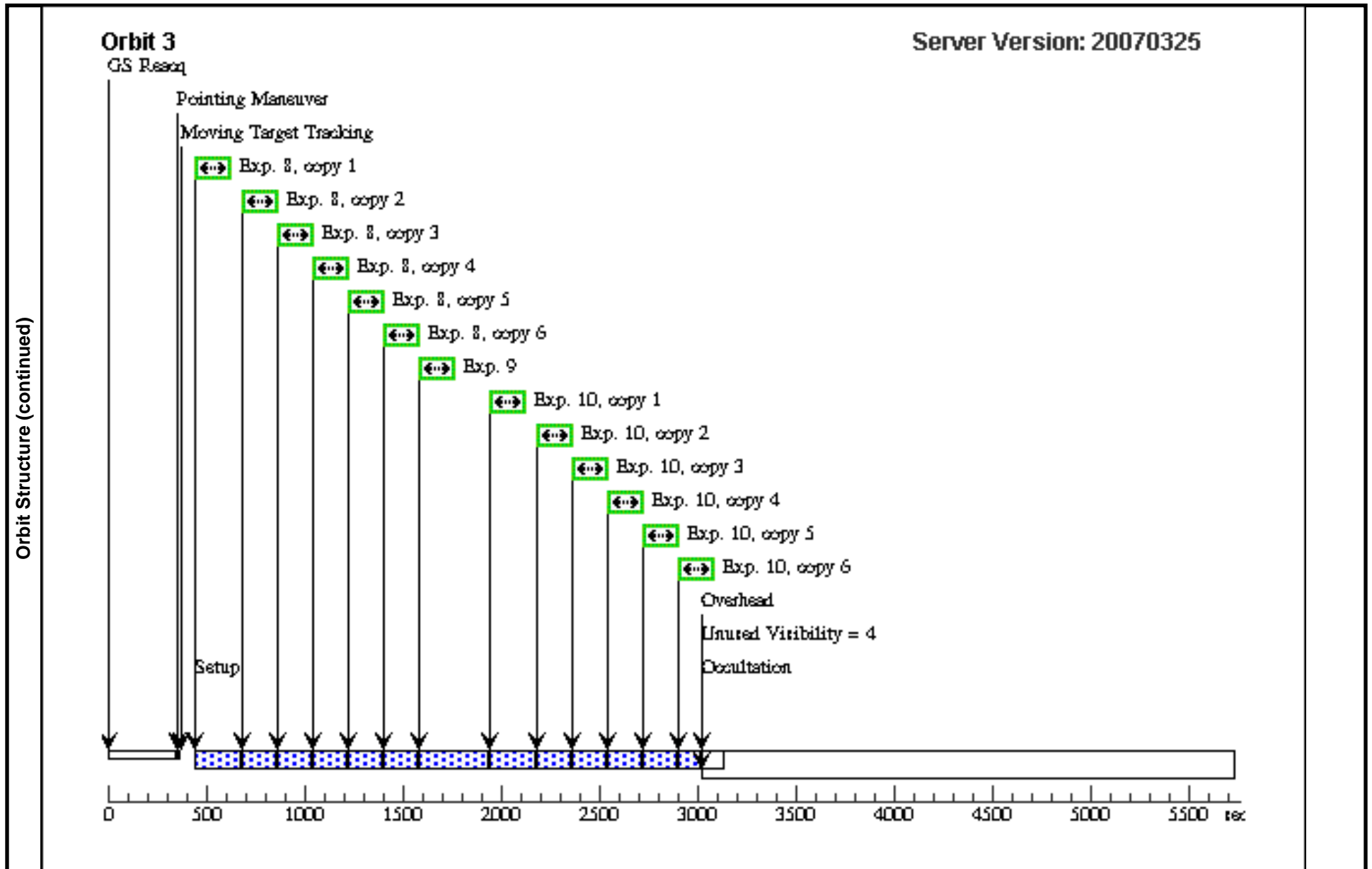
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
Exposures (continued)	2	F814W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 1	Sequence 1-3 Non-Int	200.0 Secs [==>]	[1]
	3	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 1	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	4	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2,2	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	5	F814W, 2 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	2.0 Secs [==>]	[2]
	6	F450W, 4 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	4.0 Secs [==>]	[2]
	7	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	8	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -1.889,2	Sequence 8-10 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]
	9	F450W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 8	Sequence 8-10 Non-Int	200.0 Secs [==>]	[3]

Proposal 11292 - Visit 7C - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	10	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 8	Sequence 8-10 Non-Int	100.0 Secs X 6 [=>(Copy 1)] [=>(Copy 2)] [=>(Copy 3)] [=>(Copy 4)] [=>(Copy 5)] [=>(Copy 6)]	[3]







Proposal 11292 - Visit 74 - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:05 GMT 2007

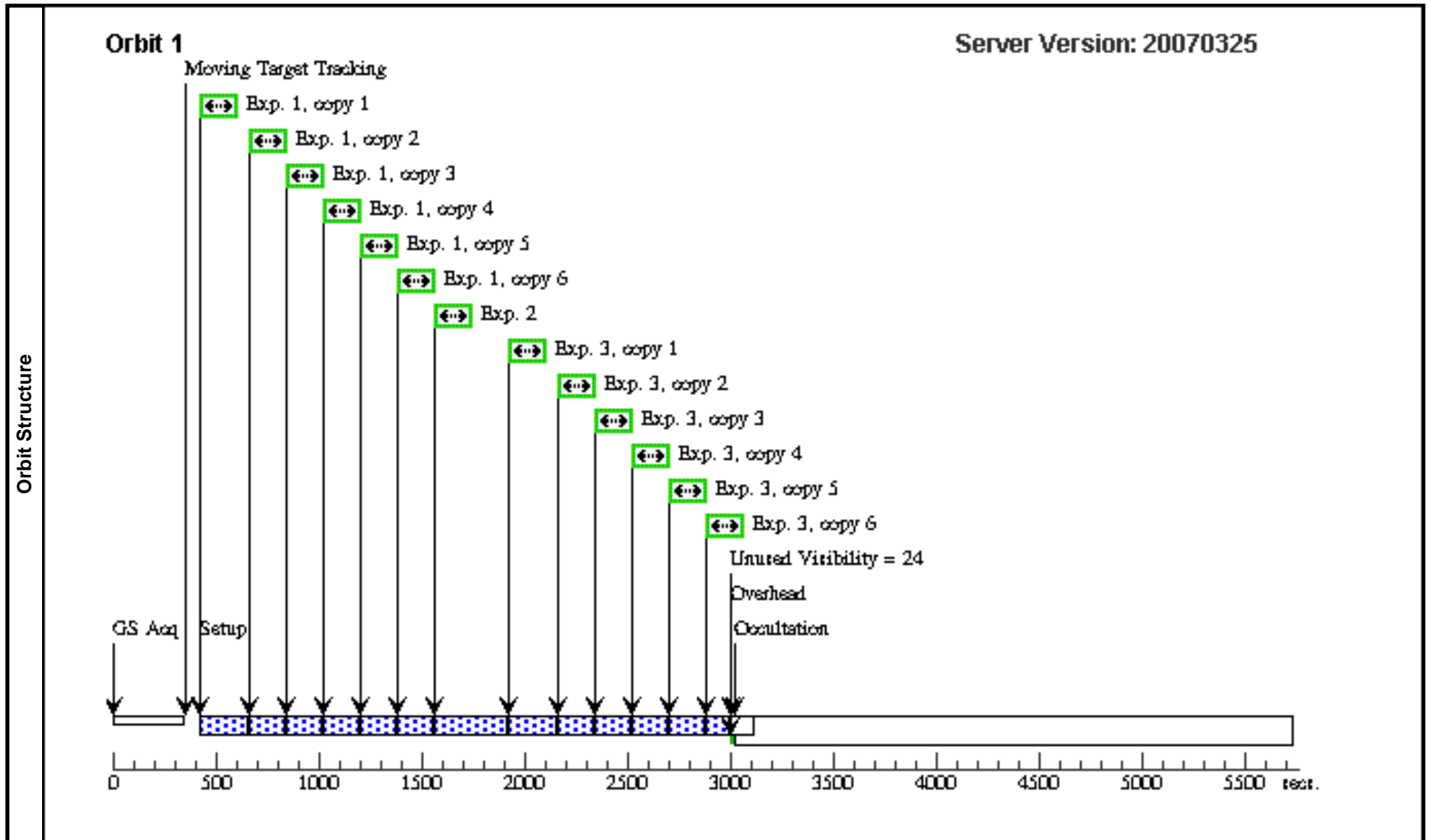
<b>Visit</b>	<p><b>Proposal 11292, Visit 74</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 225.0 D; BETWEEN 13-AUG-2007:00:00:00 AND 17-AUG-2007:00:00:00</p> <p><i>Comments: Extended search to study moons and rings, scheduled as close as possible to the ring plane crossing. Phase angle ~ 1 degree. Uranus positioned 2" below and right of the PC center point, with 2.4-pixel dither shifts along the x-axis between each orbit.</i></p> <p><i>Ring plane oriented &lt;= 15 degrees clockwise from the x-axis. Please set ORIENT parameter as close as possible to 210 degrees.</i></p>									
	<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>			
(1)		URANUS-NO-MOONS-NEARBY	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0				
<p><i>Comments: Uranus with Ariel, Umbriel, Titania and Oberon more than 100,000 km away in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system.</i></p>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F606W, 100 sec x 6	(1) URANUS-NO-MOONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 1.89,-2	Sequence 1-3 Non-Int	100.0 Secs X 6 [=>(Copy 1)] [=>(Copy 2)] [=>(Copy 3)] [=>(Copy 4)] [=>(Copy 5)] [=>(Copy 6)]	[1]

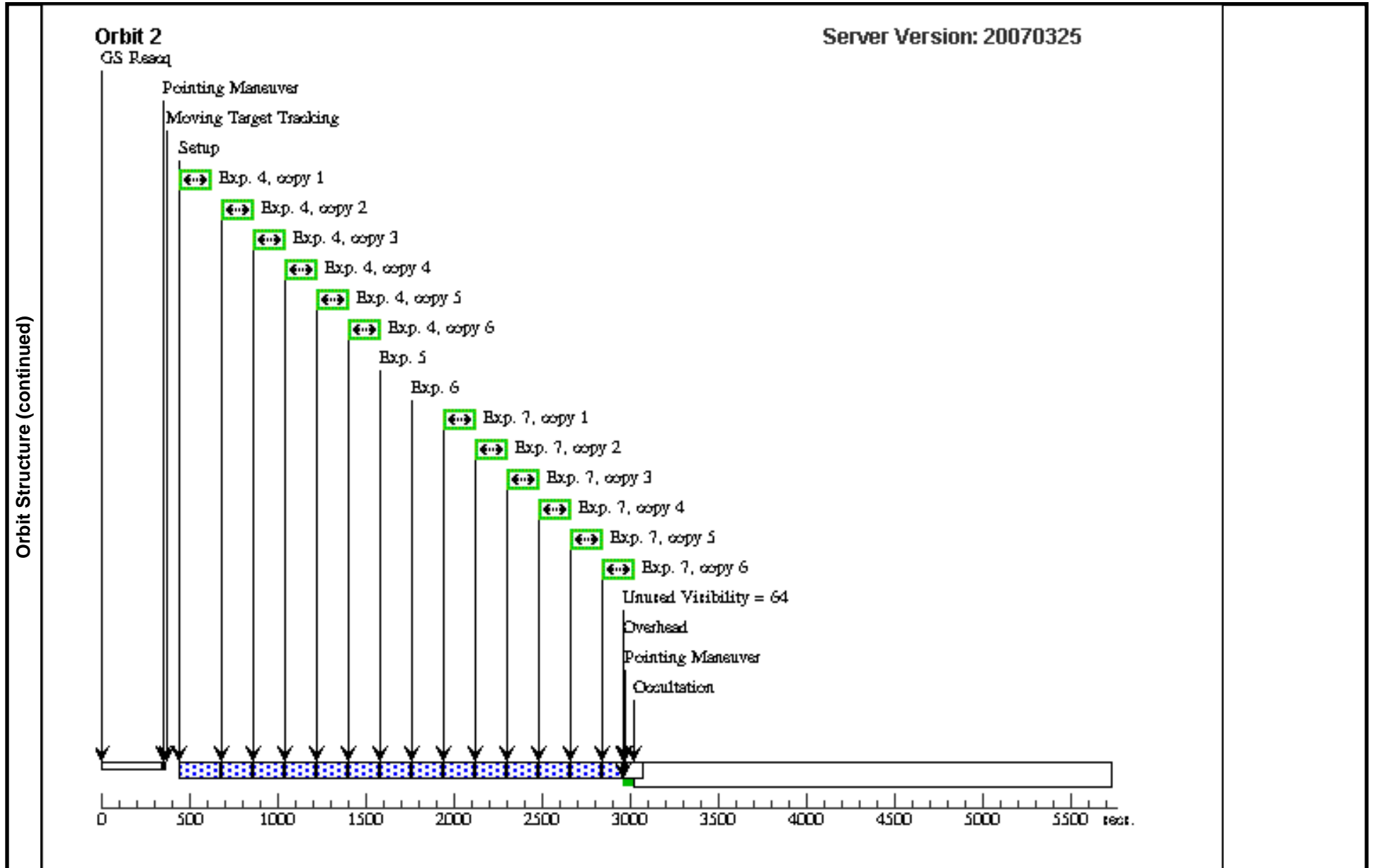
Proposal 11292 - Visit 74 - The Ring Plane Crossings of Uranus in 2007

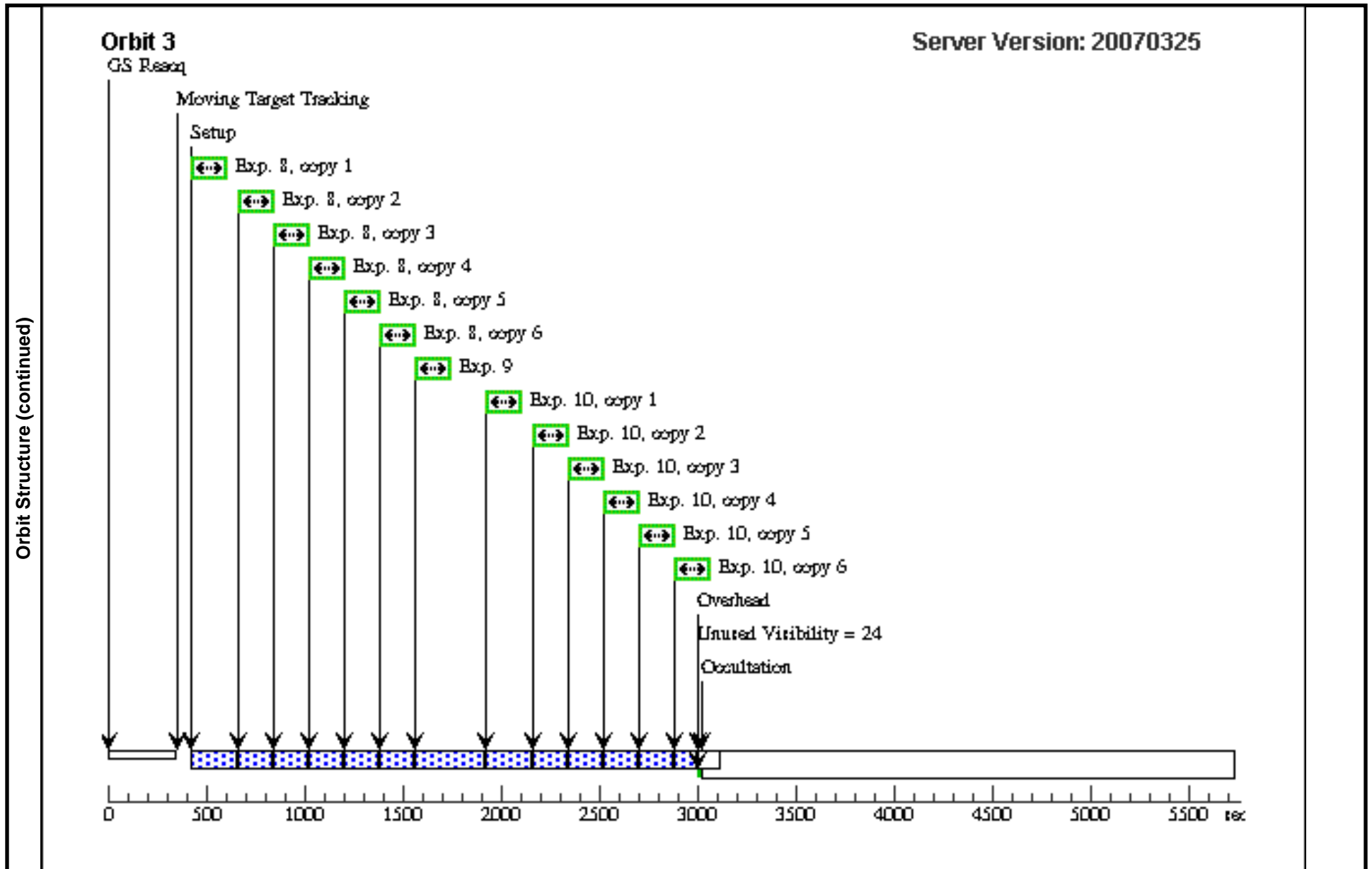
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
Exposures (continued)	2	F814W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 1	Sequence 1-3 Non-Int	200.0 Secs [==>]	[1]
	3	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 1	Sequence 1-3 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[1]
	4	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,-2	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	5	F814W, 2 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	2.0 Secs [==>]	[2]
	6	F606W, 1 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	1.0 Secs [==>]	[2]
	7	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 4	Sequence 4-7 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[2]
	8	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2.11,-2	Sequence 8-10 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]
	9	F450W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES	SAME POS AS 8	Sequence 8-10 Non-Int	200.0 Secs [==>]	[3]

Proposal 11292 - Visit 74 - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	10	F606W, 100 sec x 6	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	SAME POS AS 8	Sequence 8-10 Non-Int	100.0 Secs X 6 [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)]	[3]







Proposal 11292 - Visit 81 - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:06 GMT 2007

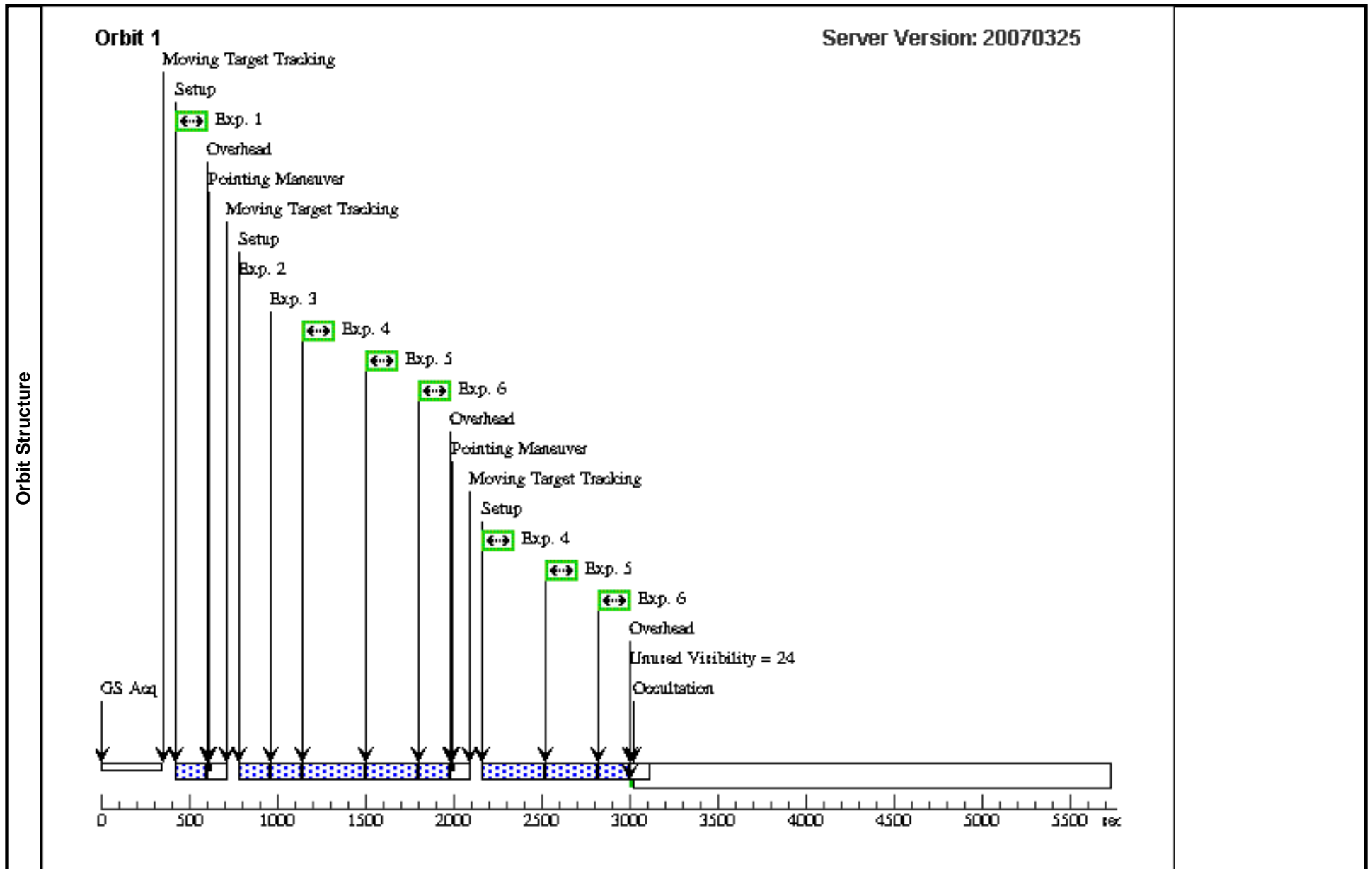
<b>Visit</b>	<b>Proposal 11292, Visit 81</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFPC2 Special Requirements: SCHED 100%; ORIENT 210.0D TO 221.0 D; BETWEEN 24-AUG-2007:00:00:00 AND 29-AUG-2007:00:00:00 Comments: <i>Edge-on ring photometry with phase angle ~ 0.7 degrees and ring opening angle ~ 0.4 degrees. Mab near maximum elongation. Uranus initially positioned 2" below and left of PC center point. Ring plane oriented 11 degrees clockwise from the x-axis, which is as close to the x-axis as ORIENT constraints allow. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i>								
	<b>Patterns</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Primary Pattern</th> <th>Secondary Pattern</th> <th>Exposures</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>                     Pattern Type=LINE                      Purpose=DITHER                      Number Of Points=2                      Point Spacing=0.114                      Line Spacing=                 </td> <td>                     Coordinate Frame=POS-TARG                      Pattern Orientation=0                      Angle Between Sides=                      Center Pattern=false                 </td> <td>(4-6)</td> </tr> </tbody> </table>	#	Primary Pattern	Secondary Pattern	Exposures	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false
#	Primary Pattern	Secondary Pattern	Exposures						
(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(4-6)						

Proposal 11292 - Visit 81 - The Ring Plane Crossings of Uranus in 2007

	#	Name	Level 1	Level 2	Level 3	Window				
	<b>Solar System Targets</b>	(2)	URANUS-WITH-MAB -1ORBIT	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MAB BETWEEN 0.0 60.0, NOT OLG OF MAB BETWEEN 120.0 240.0, NOT OLG OF MAB BETWEEN 300.0 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0, SEP OF MIRANDA MAB FROM EARTH GT 1.0"			
<p><i>Comments: Uranus with Mab near maximum elongation during a 1-orbit visit. (Mab covers only 12 degrees in this time, but we allow Mab additional leeway; it must remain within 30 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.</i></p>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2,-2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F450W, 4 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO		Sequence 1-6 Non-Int	4.0 Secs [==>]	[1]
	4	F814W, 200 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]

Proposal 11292 - Visit 81 - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	5	F450W, 160 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
6	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 11292 - Visit 82 - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:07 GMT 2007

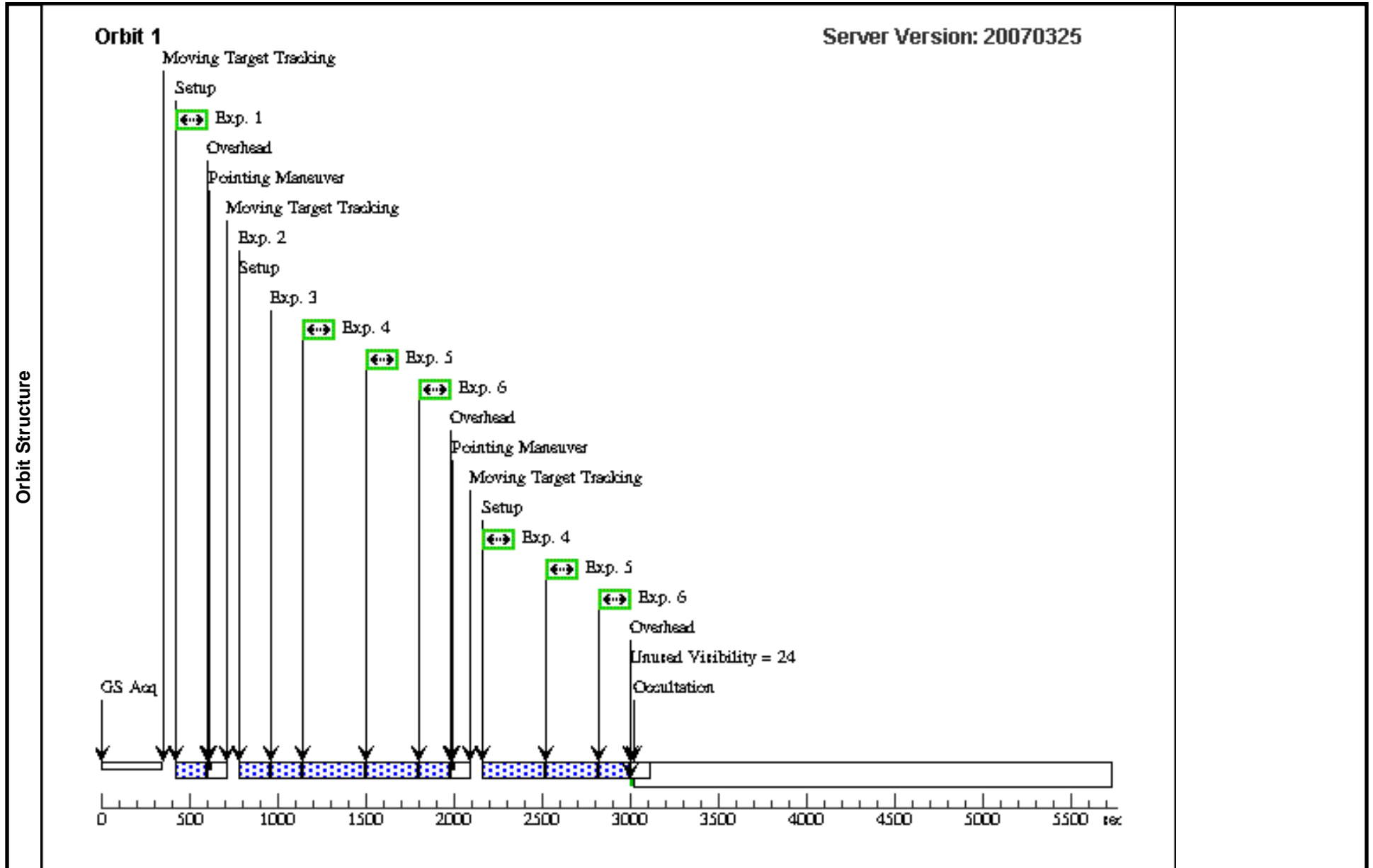
<b>Visit</b>	<p><b>Proposal 11292, Visit 82</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 225.0 D; BETWEEN 29-AUG-2007:18:00:00 AND 04-SEP-2007:00:00:00</p> <p><i>Comments: Edge-on ring photometry with phase angle ~ 0.4 degrees and ring opening angle ~ 0.6 degrees. Mab near maximum elongation. Uranus initially positioned 2" above and right of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i></p> <p><i>Ring plane oriented &lt;= 15 degrees clockwise from the x-axis; please set ORIENT parameter as close as possible to 210 degrees.</i></p> <p><i>This visit is timed to include Mab but has limited scheduling opportunities according to APT. Should this visit turn out to be unschedulable, use Visit 8B (marked ON HOLD) instead.</i></p>								
	<b>Patterns</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Primary Pattern</th> <th>Secondary Pattern</th> <th>Exposures</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>                     Pattern Type=LINE                      Purpose=DITHER                      Number Of Points=2                      Point Spacing=0.114                      Line Spacing=                 </td> <td>                     Coordinate Frame=POS-TARG                      Pattern Orientation=0                      Angle Between Sides=                      Center Pattern=false                 </td> <td>(4-6)</td> </tr> </tbody> </table>	#	Primary Pattern	Secondary Pattern	Exposures	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false
#	Primary Pattern	Secondary Pattern	Exposures						
(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(4-6)						

Proposal 11292 - Visit 82 - The Ring Plane Crossings of Uranus in 2007

	#	Name	Level 1	Level 2	Level 3	Window				
	<b>Solar System Targets</b>	(2)	URANUS-WITH-MAB -1ORBIT	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MAB BETWEEN 0.0 60.0, NOT OLG OF MAB BETWEEN 120.0 240.0, NOT OLG OF MAB BETWEEN 300.0 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0, SEP OF MIRANDA MAB FROM EARTH GT 1.0"			
<p><i>Comments: Uranus with Mab near maximum elongation during a 1-orbit visit. (Mab covers only 12 degrees in this time, but we allow Mab additional leeway; it must remain within 30 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.</i></p>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F606W, 1 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO		Sequence 1-6 Non-Int	1.0 Secs [==>]	[1]
	4	F814W, 200 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]

Proposal 11292 - Visit 82 - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	5	F450W, 160 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
6	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



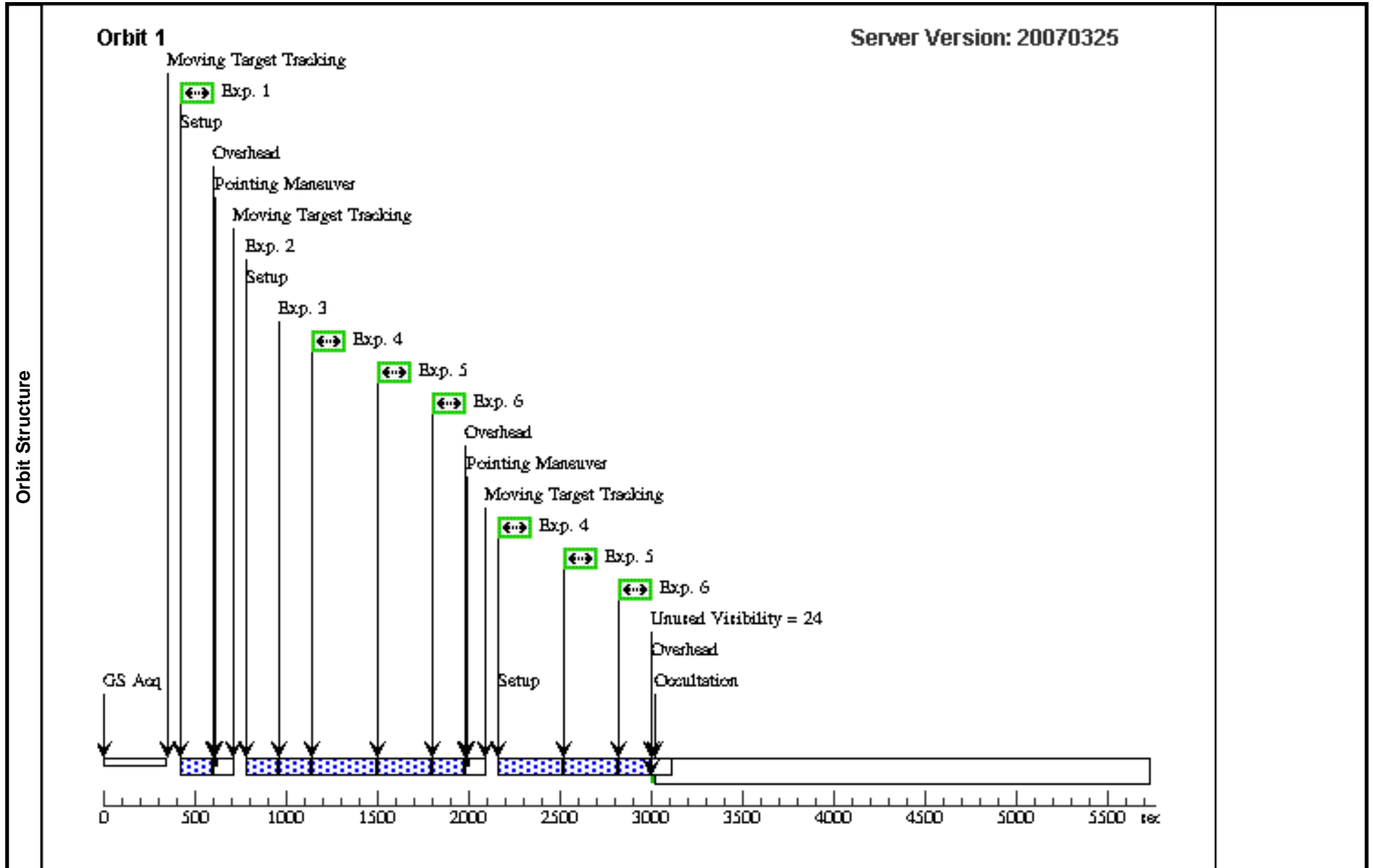
Proposal 11292 - Visit 8B - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:07 GMT 2007

<b>Visit</b>	<p><b>Proposal 11292, Visit 8B</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 225.0 D; BETWEEN 29-AUG-2007:18:00:00 AND 04-SEP-2007:12:00:00; ON HOLD</p> <p><i>Comments: Edge-on ring photometry with phase angle ~ 0.4 degrees and ring opening angle ~ 0.6 degrees. Uranus initially positioned 2" above and right of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i></p> <p><i>Ring plane oriented &lt;= 15 degrees clockwise from the x-axis; please set ORIENT parameter as close as possible to 210 degrees.</i></p> <p><i>This visit is ON HOLD as an alternative to Visit 82. It should be more schedulable because it has no OLG constraints on Mab. Please use in the event that Visit 82 is found to be unschedulable.</i></p> <p><i>On Hold Comments: To execute only if Visit 82 cannot be scheduled.</i></p>					
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>	
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(4-6)		
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>
	(1)	URANUS-NO-MOONS-NEARBY	STD=URANUS			
	<p><i>Comments: Uranus with Ariel, Umbriel, Titania and Oberon more than 100,000 km away in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system.</i></p>					

Proposal 11292 - Visit 8B - The Ring Plane Crossings of Uranus in 2007

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F606W, 1 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO		Sequence 1-6 Non-Int	1.0 Secs [==>]	[1]
	4	F814W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F450W, 160 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 11292 - Visit 83 - The Ring Plane Crossings of Uranus in 2007

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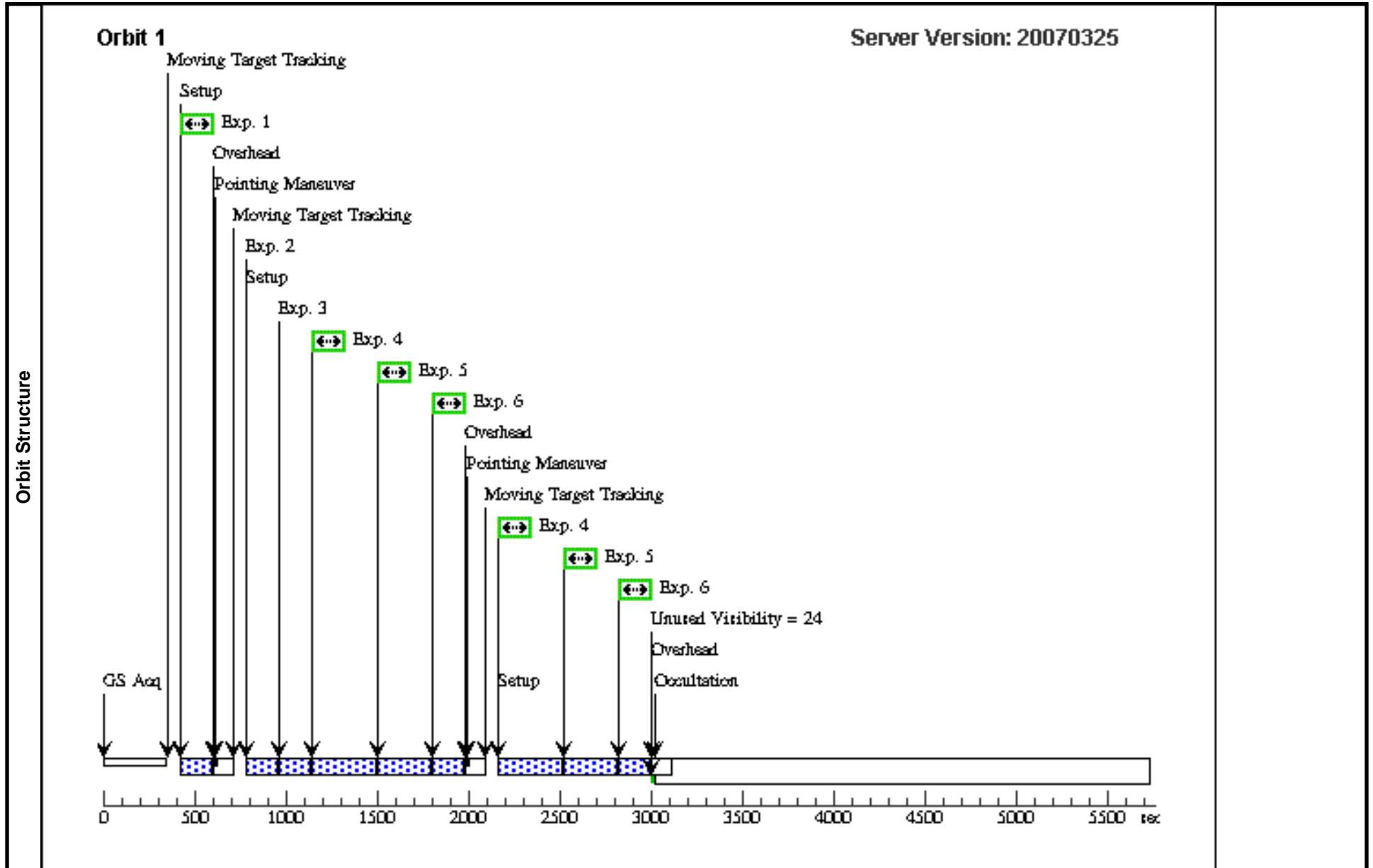
<b>Visit</b>	<p><b>Proposal 11292, Visit 83</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 230.0 D; BETWEEN 04-SEP-2007:18:00:00 AND 07-SEP-2007:00:00:00</p> <p><i>Comments: Edge-on ring photometry with phase ~ 0.2 degrees and ring opening angle ~ 0.7 degrees. Mab near maximum elongation. Uranus initially positioned 2" above and left of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i></p> <p><i>Ring plane oriented &lt;= 20 degrees clockwise from the x-axis; please set ORIENT parameter as close as possible to 210 degrees.</i></p> <p><i>This visit is timed to include Mab but has limited scheduling opportunities according to APT. Should this visit turn out to be unschedulable, use Visit 8C (marked ON HOLD) instead.</i></p>								
	<b>Patterns</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Primary Pattern</th> <th>Secondary Pattern</th> <th>Exposures</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>                     Pattern Type=LINE                      Purpose=DITHER                      Number Of Points=2                      Point Spacing=0.114                      Line Spacing=                 </td> <td>                     Coordinate Frame=POS-TARG                      Pattern Orientation=0                      Angle Between Sides=                      Center Pattern=false                 </td> <td>(4-6)</td> </tr> </tbody> </table>	#	Primary Pattern	Secondary Pattern	Exposures	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false
#	Primary Pattern	Secondary Pattern	Exposures						
(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(4-6)						

Proposal 11292 - Visit 83 - The Ring Plane Crossings of Uranus in 2007

	#	Name	Level 1	Level 2	Level 3	Window				
	<b>Solar System Targets</b>	(2)	URANUS-WITH-MAB -1ORBIT	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MAB BETWEEN 0.0 60.0, NOT OLG OF MAB BETWEEN 120.0 240.0, NOT OLG OF MAB BETWEEN 300.0 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0, SEP OF MIRANDA MAB FROM EARTH GT 1.0"			
<p><i>Comments: Uranus with Mab near maximum elongation during a 1-orbit visit. (Mab covers only 12 degrees in this time, but we allow Mab additional leeway; it must remain within 30 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.</i></p>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2,2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F450W, 4 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO		Sequence 1-6 Non-Int	4.0 Secs [==>]	[1]
	4	F814W, 200 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]

Proposal 11292 - Visit 83 - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		5	F450W, 160 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]
	6	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



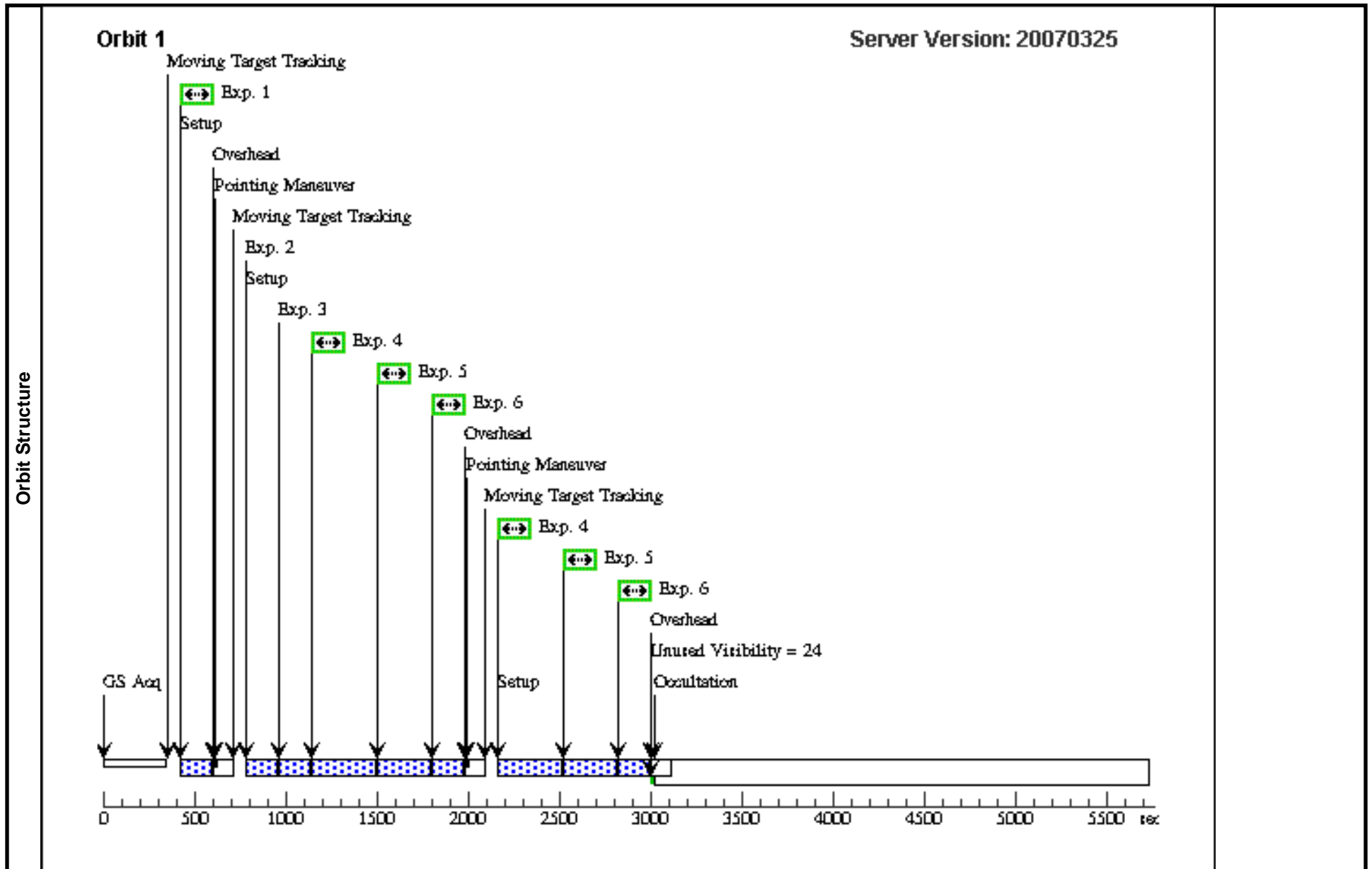
Proposal 11292 - Visit 8C - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:08 GMT 2007

<b>Visit</b>	<p><b>Proposal 11292, Visit 8C</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 230.0 D; BETWEEN 04-SEP-2007:18:00:00 AND 07-SEP-2007:00:00:00; ON HOLD</p> <p><i>Comments: Edge-on ring photometry with phase ~ 0.2 degrees and ring opening angle ~ 0.7 degrees. Uranus initially positioned 2" above and left of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i></p> <p><i>Ring plane oriented &lt;= 20 degrees clockwise from the x-axis; please set ORIENT parameter as close as possible to 210 degrees.</i></p> <p><i>This visit is ON HOLD as an alternative to Visit 83. It should be more schedulable because it has no OLG constraints on Mab. Please use in the event that Visit 83 is found to be unschedulable.</i></p> <p><i>On Hold Comments: To execute only if Visit 83 cannot be scheduled.</i></p>					
	<b>Patterns</b>	#	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>	
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false		(4-6)	
<b>Solar System Targets</b>	#	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>
	(1)	URANUS-NO-MOONS-NEARBY	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0
	<p><i>Comments: Uranus with Ariel, Umbriel, Titania and Oberon more than 100,000 km away in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system.</i></p>					

Proposal 11292 - Visit 8C - The Ring Plane Crossings of Uranus in 2007

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG -2,2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F450W, 4 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO		Sequence 1-6 Non-Int	4.0 Secs [==>]	[1]
	4	F814W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F450W, 160 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



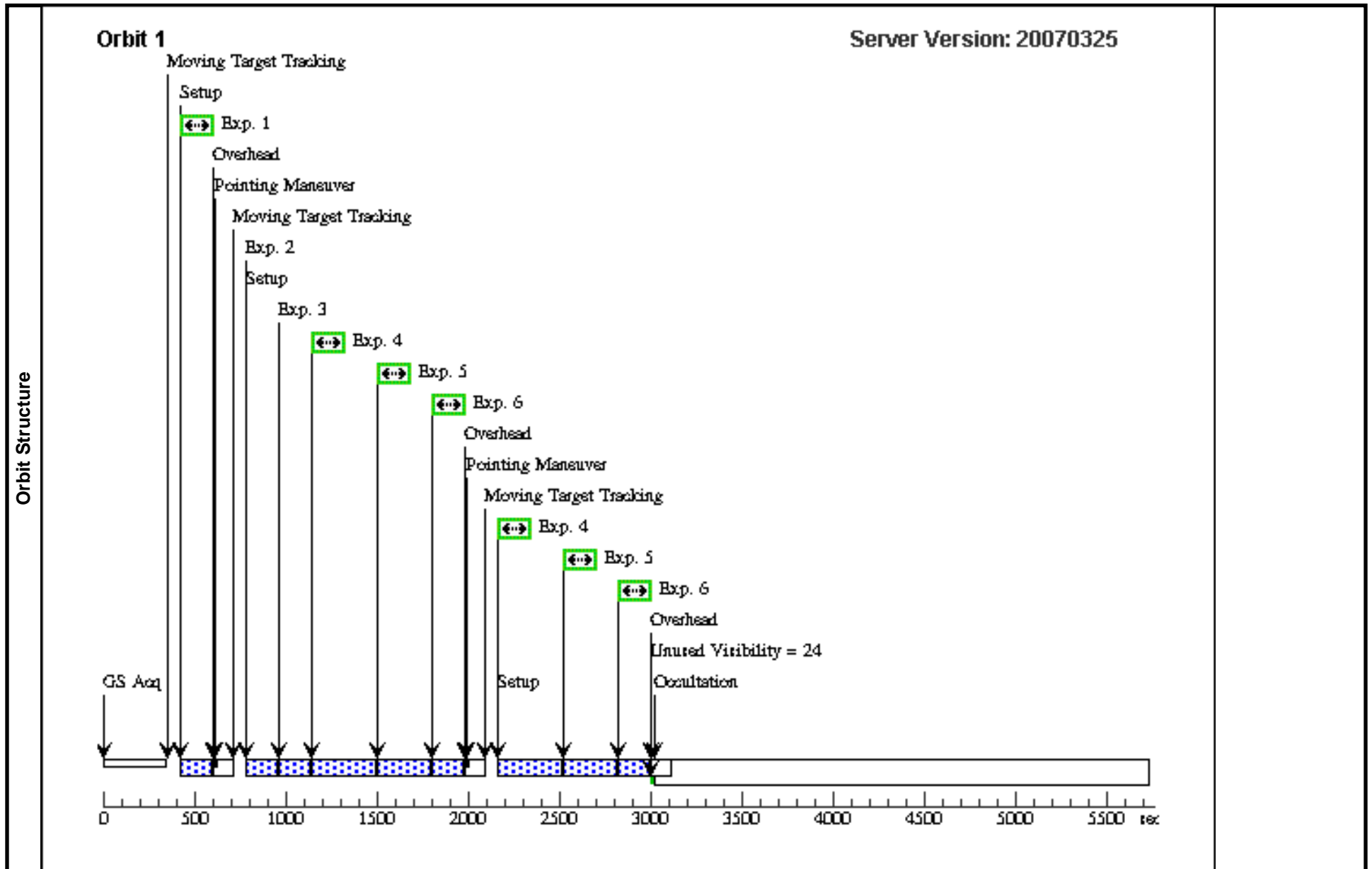
Proposal 11292 - Visit 84 - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:08 GMT 2007

<b>Visit</b>	<p><b>Proposal 11292, Visit 84</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 208.0D TO 212.0 D; BETWEEN 09-SEP-2007:00:00:00 AND 11-SEP-2007:00:00:00</p> <p><i>Comments: Edge-on ring photometry near opposition, with phase angle ~ 0.05 degrees and ring opening angle ~ 0.9 degrees. Uranus initially positioned 2" below and right of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings. Ring plane oriented within a few degrees of the PC x-axis.</i></p> <p><i>Note that this observation is only schedulable during a 6.5-hour period on 9-Sep, according to APT. Nevertheless, this is an extremely high-priority observation because it provides the smallest possible phase angle and an optimized orientation.</i></p> <p><i>If this visit turns out that this visit is unschedulable, then Visits 8D, 8E and 8F (all marked ON HOLD) are offered as alternatives.</i></p>					
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>	
(1)		Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false		(4-6)	
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>
	(1)	URANUS-NO-MOONS-NEARBY	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0
<p><i>Comments: Uranus with Ariel, Umbriel, Titania and Oberon more than 100,000 km away in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system.</i></p>						

Proposal 11292 - Visit 84 - The Ring Plane Crossings of Uranus in 2007

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,-2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F606W, 1 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO		Sequence 1-6 Non-Int	1.0 Secs [==>]	[1]
	4	F814W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F450W, 160 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



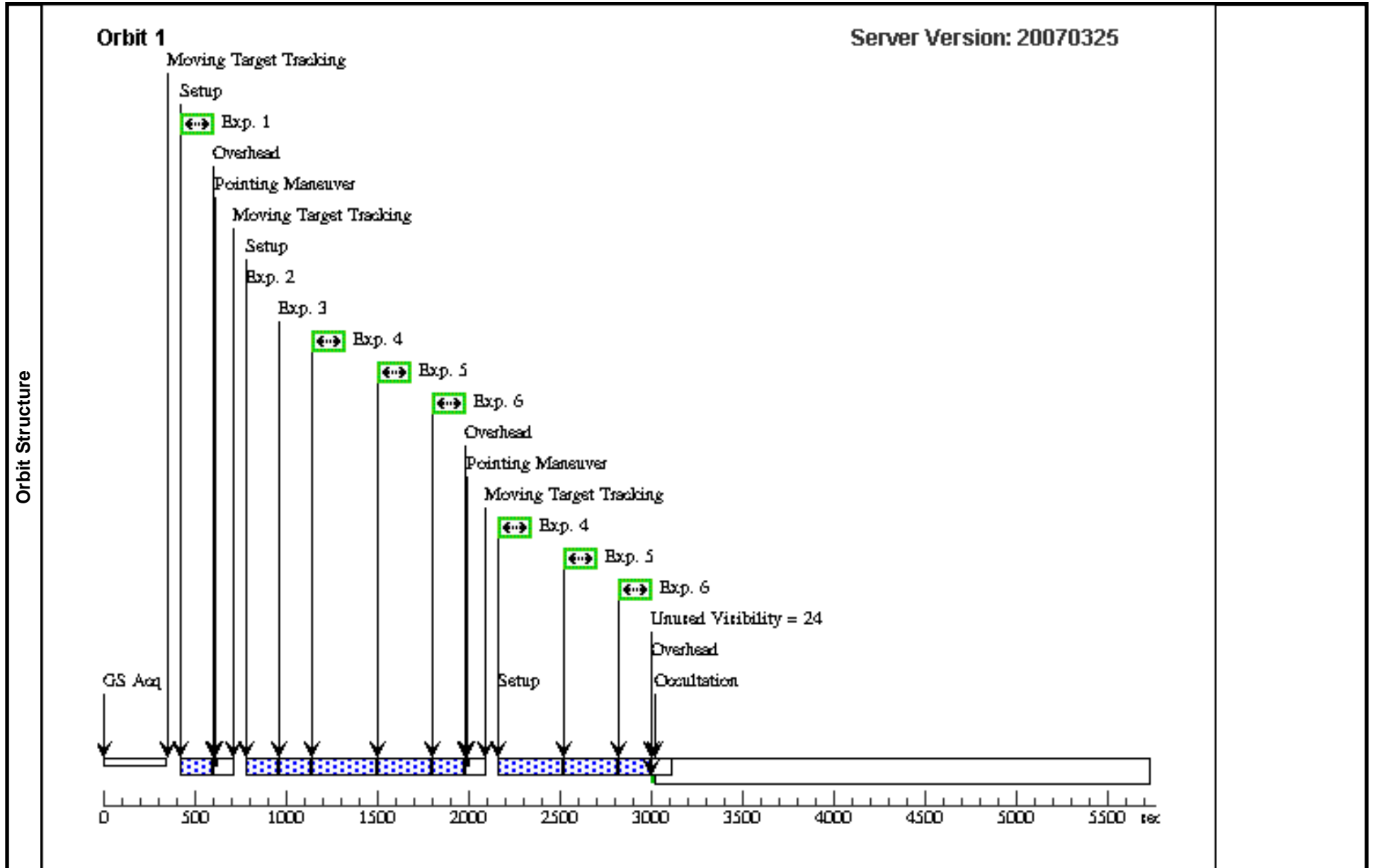
Proposal 11292 - Visit 8D - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:09 GMT 2007

<b>Visit</b>	<p><b>Proposal 11292, Visit 8D</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 210.0D TO 238.0 D; BETWEEN 07-SEP-2007:00:00:00 AND 09-SEP-2007:00:00:00; ON HOLD</p> <p><i>Comments: Edge-on ring photometry near opposition, with phase angle ~ 0.1 degrees and ring opening angle ~ 0.9 degrees. Uranus initially positioned 2" below and right of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i></p> <p><i>Ring plane oriented &lt;= 28 degrees of the PC x-axis; please set ORIENT parameter as close as possible to 210 degrees.</i></p> <p><i>This visit is marked ON HOLD and is offered as the primary alternative to Visit 8D. It is much less desirable because of the higher phase angle and because the orientation is less optimal. Nevertheless, this observation is only schedulable during a few limited windows according to APT. If it turns out that neither Visits 84 or 8D are schedulable, then Visits 8E or 8F (both also marked ON HOLD) can be used instead.</i></p> <p><i>On Hold Comments: First-choice alternative to Visit 84 if that visit cannot be scheduled.</i></p>					
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>	
(1)		Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false		(4-6)	
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>
	(1)	URANUS-NO-MOONS-NEARBY	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0
<p><i>Comments: Uranus with Ariel, Umbriel, Titania and Oberon more than 100,000 km away in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system.</i></p>						

Proposal 11292 - Visit 8D - The Ring Plane Crossings of Uranus in 2007

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,-2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F606W, 1 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO		Sequence 1-6 Non-Int	1.0 Secs [==>]	[1]
	4	F814W, 200 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F450W, 160 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F606W, 100 sec	(1) URANUS-NO-M OONS-NEARBY	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 11292 - Visit 8E - The Ring Plane Crossings of Uranus in 2007

Mon May 21 21:31:09 GMT 2007

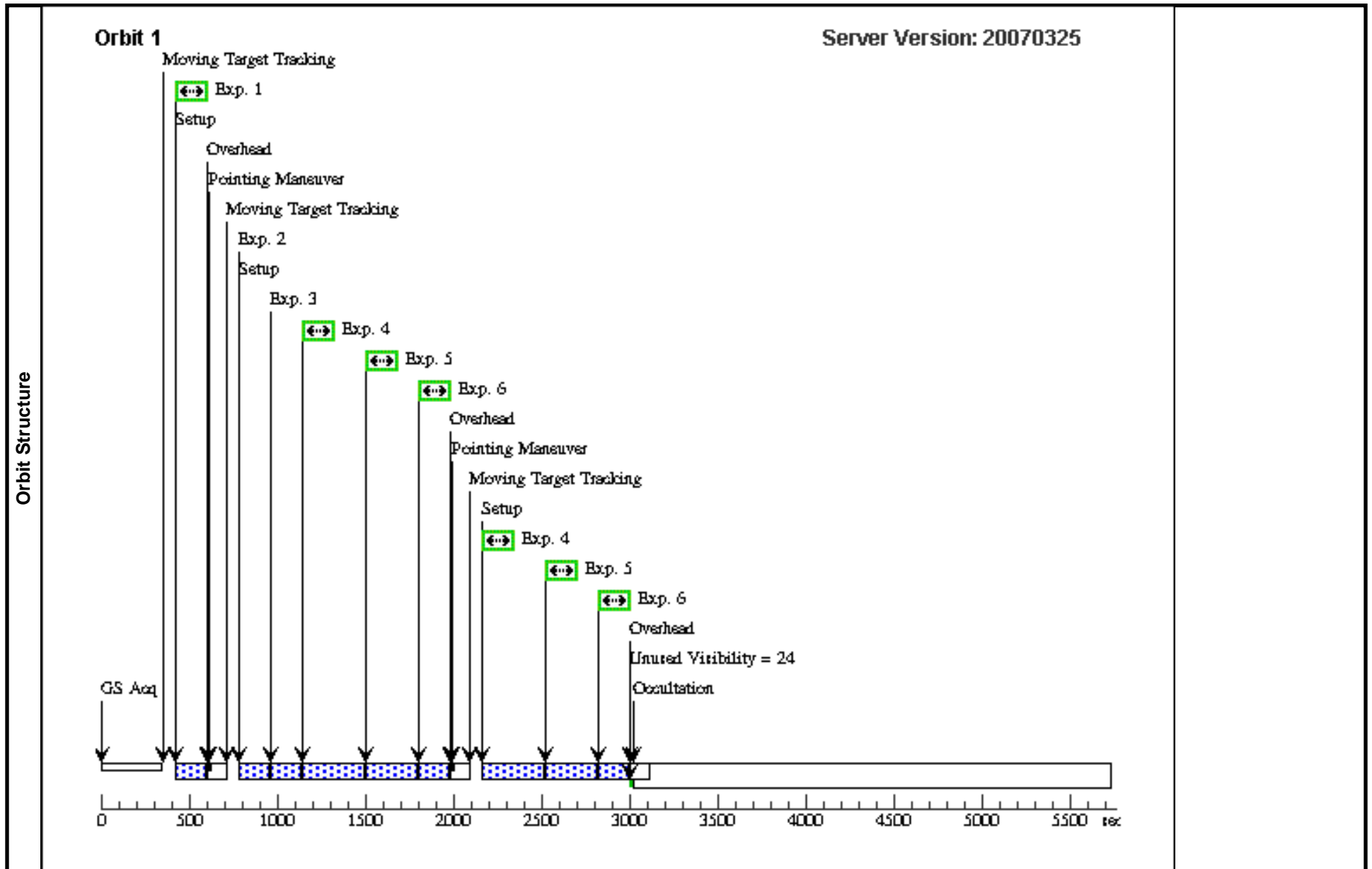
<b>Visit</b>	<p><b>Proposal 11292, Visit 8E</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 30.0D TO 36.0 D; BETWEEN 30-SEP-2007:00:00:00 AND 15-OCT-2007:00:00:00; ON HOLD</p> <p><i>Comments: Post-opposition visit for additional photometry and time coverage for Mab's orbit. Uranus initially positioned 2" below and right of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings. Ring plane oriented within ~ 6 degrees of the PC x-axis.</i></p> <p><i>ON HOLD as an alternative to Visits 84 and 8D if neither visit can be scheduled. Note that this visit still has limited schedulability due to the requirement that the rings be oriented very close to the PC x-axis. If this visit cannot be scheduled, then Visit 8F (also marked ON HOLD), with a relaxed ORIENT constraint, can be scheduled instead.</i></p> <p><i>On Hold Comments: Second-choice alternative to opposition Visits 84 and 8E if neither can be scheduled.</i></p>								
	<b>Patterns</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Primary Pattern</th> <th>Secondary Pattern</th> <th>Exposures</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>                     Pattern Type=LINE                      Purpose=DITHER                      Number Of Points=2                      Point Spacing=0.114                      Line Spacing=                 </td> <td>                     Coordinate Frame=POS-TARG                      Pattern Orientation=0                      Angle Between Sides=                      Center Pattern=false                 </td> <td>(4-6)</td> </tr> </tbody> </table>	#	Primary Pattern	Secondary Pattern	Exposures	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false
#	Primary Pattern	Secondary Pattern	Exposures						
(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(4-6)						

Proposal 11292 - Visit 8E - The Ring Plane Crossings of Uranus in 2007

	#	Name	Level 1	Level 2	Level 3	Window				
	<b>Solar System Targets</b>	(2)	URANUS-WITH-MAB -1ORBIT	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MAB BETWEEN 0.0 60.0, NOT OLG OF MAB BETWEEN 120.0 240.0, NOT OLG OF MAB BETWEEN 300.0 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0, SEP OF MIRANDA MAB FROM EARTH GT 1.0"			
<p><i>Comments: Uranus with Mab near maximum elongation during a 1-orbit visit. (Mab covers only 12 degrees in this time, but we allow Mab additional leeway; it must remain within 30 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.</i></p>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,-2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F606W, 1 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO		Sequence 1-6 Non-Int	1.0 Secs [==>]	[1]
	4	F814W, 200 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]

Proposal 11292 - Visit 8E - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	5	F450W, 160 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
6	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 11292 - Visit 8F - The Ring Plane Crossings of Uranus in 2007

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<b>Visit</b>	<p><b>Proposal 11292, Visit 8F</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SCHED 100%; ORIENT 30.0D TO 45.0 D; BETWEEN 30-SEP-2007:00:00:00 AND 15-OCT-2007:00:00:00; ON HOLD</p> <p><i>Comments: Post-opposition visit for additional photometry and time coverage of Mab's orbit. Uranus initially positioned 2" below and right of PC center point. Dither shift by 2.5 pixels along x-axis for improved radial resolution on rings.</i></p> <p><i>Ring plane oriented within ~ 15 degrees of the PC x-axis; please set ORIENT parameter as close as possible to 30 degrees.</i></p> <p><i>ON HOLD as an alternative to Visits 84, 8D and 8E if none of them can be scheduled. ORIENT constraints are relaxed so visit should be more schedulable.</i></p> <p><i>On Hold Comments: To execute only if none of Visits 84, 8D and 8E cannot be scheduled.</i></p>								
	<b>Patterns</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Primary Pattern</th> <th>Secondary Pattern</th> <th>Exposures</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>                     Pattern Type=LINE                      Purpose=DITHER                      Number Of Points=2                      Point Spacing=0.114                      Line Spacing=                 </td> <td>                     Coordinate Frame=POS-TARG                      Pattern Orientation=0                      Angle Between Sides=                      Center Pattern=false                 </td> <td>(4-6)</td> </tr> </tbody> </table>	#	Primary Pattern	Secondary Pattern	Exposures	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.114 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false
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Proposal 11292 - Visit 8F - The Ring Plane Crossings of Uranus in 2007

	#	Name	Level 1	Level 2	Level 3	Window				
	<b>Solar System Targets</b>	(2)	URANUS-WITH-MAB -1ORBIT	STD=URANUS			NOT OLG OF ARIEL BETWEEN 0.0 31.5, NOT OLG OF ARIEL BETWEEN 148.5 211.5, NOT OLG OF ARIEL BETWEEN 328.5 360.0, NOT OLG OF UMBRIEL BETWEEN 0.0 22.1, NOT OLG OF UMBRIEL BETWEEN 157.9 202.1, NOT OLG OF UMBRIEL BETWEEN 337.9 360.0, NOT OLG OF TITANIA BETWEEN 0.0 13.3, NOT OLG OF TITANIA BETWEEN 166.7 193.3, NOT OLG OF TITANIA BETWEEN 346.7 360.0, NOT OLG OF OBERON BETWEEN 0.0 9.9, NOT OLG OF OBERON BETWEEN 170.1 189.9, NOT OLG OF OBERON BETWEEN 350.1 360.0, NOT OLG OF MAB BETWEEN 0.0 60.0, NOT OLG OF MAB BETWEEN 120.0 240.0, NOT OLG OF MAB BETWEEN 300.0 360.0, NOT OLG OF MIRANDA BETWEEN 0.0 25.0, NOT OLG OF MIRANDA BETWEEN 155.0 205.0, NOT OLG OF MIRANDA BETWEEN 335.0 360.0, SEP OF MIRANDA MAB FROM EARTH GT 1.0"			
<p><i>Comments: Uranus with Mab near maximum elongation during a 1-orbit visit. (Mab covers only 12 degrees in this time, but we allow Mab additional leeway; it must remain within 30 degrees of elongation.) Ariel, Umbriel, Titania and Oberon are required to be more than 100,000 km from the center of Uranus in projected distance along the ring ansa; this guarantees that any bright diffraction spike falls beyond the orbit of Mab. Also, Miranda's diffraction spike must stay outside the ring system and at least 1 arcsec from Mab.</i></p>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO	POS TARG 2,-2	Sequence 1-6 Non-Int	100.0 Secs [==>]	[1]
	2	F814W, 2 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO		Sequence 1-6 Non-Int	2.0 Secs [==>]	[1]
	3	F606W, 1 se c	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CR-SPLIT=NO		Sequence 1-6 Non-Int	1.0 Secs [==>]	[1]
	4	F814W, 200 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F814W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	200.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]

Proposal 11292 - Visit 8F - The Ring Plane Crossings of Uranus in 2007

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	5	F450W, 160 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F450W	CR-SPLIT=NO; CLOCKS=YES		Sequence 1-6 Non-Int Pattern 4-6 (1)	160.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
6	F606W, 100 sec	(2) URANUS-WITH -MAB-1ORBIT	WFPC2, IMAGE, PC1-FIX	F606W	CLOCKS=YES; CR-SPLIT=NO		Sequence 1-6 Non-Int Pattern 4-6 (1)	100.0 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	

