



12897 - Pluto System Orbits in Support of New Horizons

Cycle: 20, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Marc W. Buie (PI) (Contact)	Southwest Research Institute	buie@boulder.swri.edu
Dr. David Tholen (CoI)	University of Hawaii	tholen@ifa.hawaii.edu
Dr. William M. Grundy (CoI)	Lowell Observatory	w.grundy@lowell.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>
01	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:01:47.0	yes
02	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:02:06.0	yes
03	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:02:25.0	yes
04	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:02:41.0	yes
05	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:03:01.0	yes
06	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:03:17.0	yes
07	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:03:33.0	yes
08	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:03:48.0	yes
09	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:04:04.0	yes
10	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:04:19.0	yes
11	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:04:38.0	yes
12	(1) PLUTO-SYSTEM	WFC3/UVIS	1	18-Jul-2013 21:04:53.0	yes

12 Total Orbits Used

ABSTRACT

We propose a sequence of observations that will significantly improve the orbit of P/2011 P1 and provide useful improvements to the orbits of other satellites in the Pluto system. The orbit determination work for the newest satellite discovery is critically needed so that New Horizons can know where to point its instruments at close approach. These data will also be useful for improved mass constraints on the outer satellites as well as refining our knowledge of the photometric properties of all objects in the Pluto system. In particular, lightcurve and color evolution will be monitored by these observations for use in constraining models of seasonal evolution on Pluto.

OBSERVING DESCRIPTION

Each visit is identically constructed. The timing for all visits is designed to provide nearly uniform astrometric coverage as a function of the orbital longitude of the satellites in the Pluto system. Within each visit there are a series of short, medium, and long duration exposures designed to cover the large dynamic range of the Pluto system and to provide astrometric ties to well-understood wavelengths. The shortest exposures prevent saturation of Pluto and occur at the start of the visit. The longest duration exposure is set to give adequate signal on the faintest satellite, P/2011 P1 (otherwise known as P4). The exposure time is set as a compromise between per-frame photometric depth and minimization of lost pixels due to over-exposure from Pluto, Charon and field stars in the very crowded field Pluto is presently moving through. The medium exposure at the end serves to bridge the gap in brightness range between these two extremes while still providing useful detections of Nix and Hydra.

ADDITIONAL COMMENTS

The scheduling windows are set to ensure an SAA-free period but there will be more than one possible orbit that is useable. Once the STScI proposal scheduling staff can provide actual times for the scheduled orbits we can perform checks that will help to avoid orbits compromised by bright star contamination in our FOV as well as determine if we need for off-nominal roll tweaks to prevent the faint outer satellites from falling on diffraction spikes of Pluto or Charon. This can be done as soon as the observations are assigned a specific visibility window within the much coarser time-

constraints imposed by the proposal.

The dithering pattern we use is a combination of the standard line pattern and pos-targ values that help fill the unit pixel while providing some slightly larger dithering as well. The entire pattern is biased by (+4.0, +0.3) to move the system away from the bad columns near the center of the sub-array. If the location of default pointing within this sub-array changes, we will have to update all of the pos-targ values.

Proposal 12897 - Visit 01 - Pluto System Orbits in Support of New Horizons

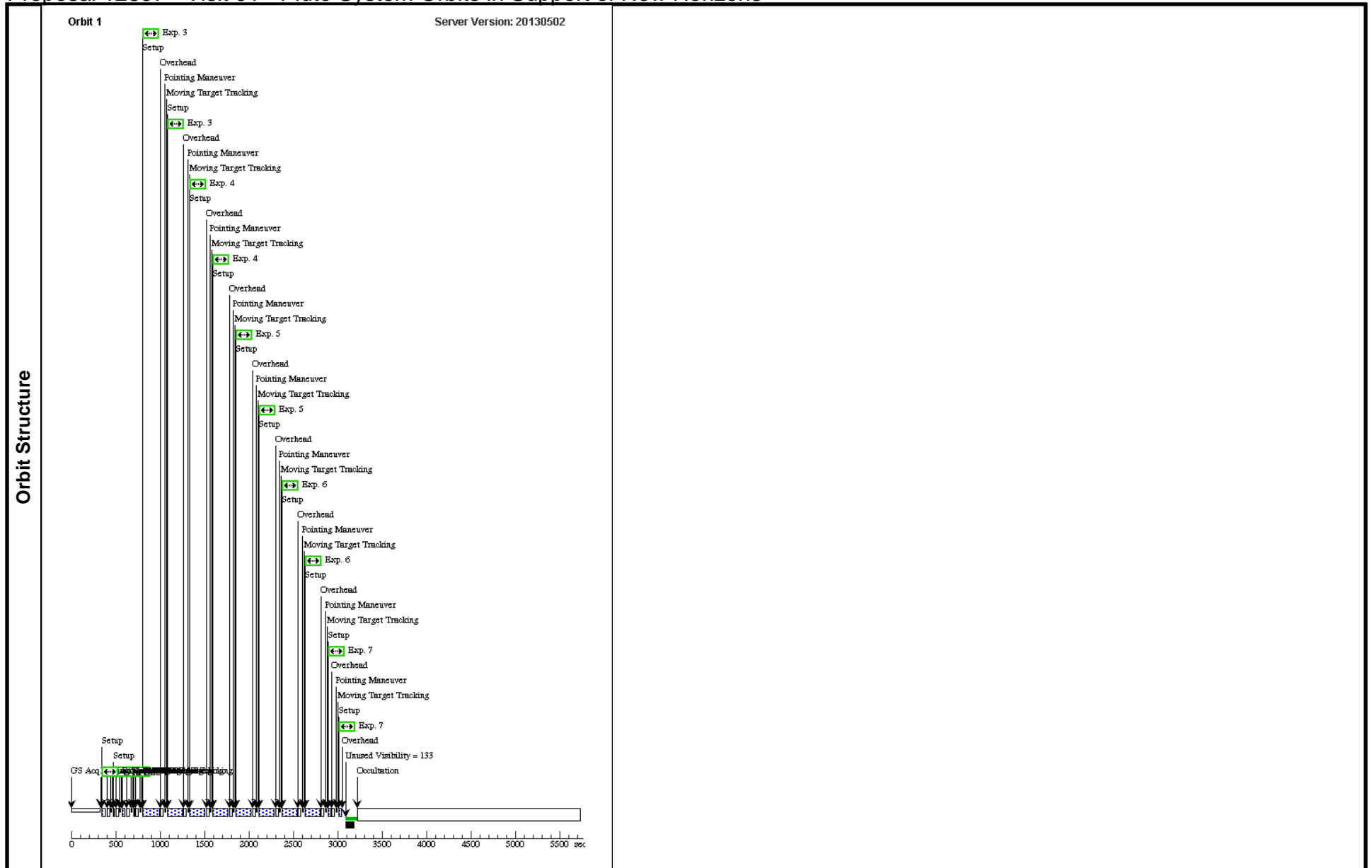
Fri Jul 19 01:05:04 GMT 2013

Visit	<p>Proposal 12897, Visit 01, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 263D TO 263 D; BETWEEN 30-APR-2013:18:23:50 AND 01-MAY-2013:06:23:50</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 01 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 01 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 01 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P41 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 01 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P41 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 01 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P41 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 01 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P41 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 01 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite medium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 01 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit 01 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 02 - Pluto System Orbits in Support of New Horizons

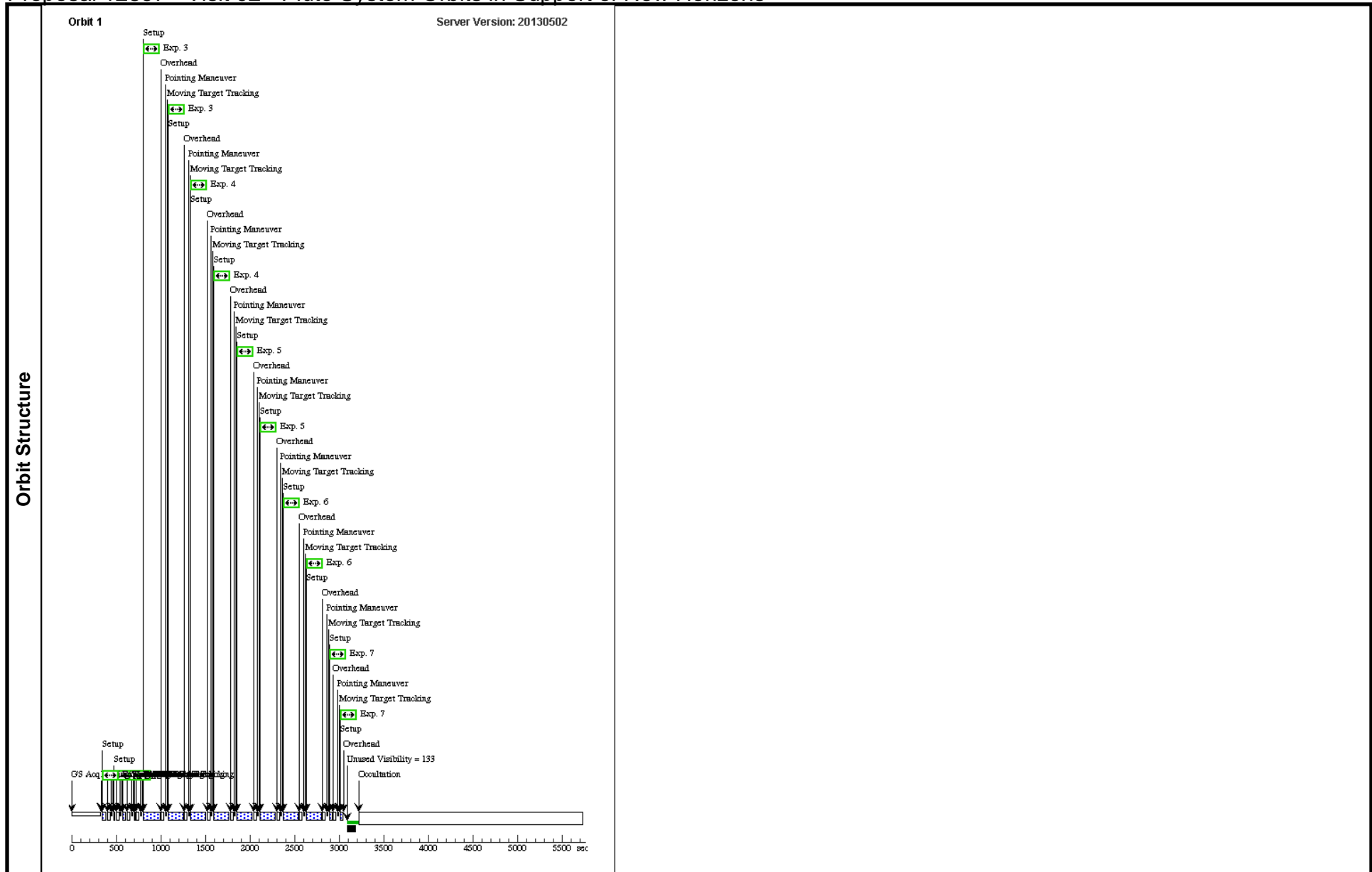
Fri Jul 19 01:05:07 GMT 2013

Visit	<p>Proposal 12897, Visit 02, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 267D TO 267 D; BETWEEN 28-MAY-2013:02:00:00 AND 28-MAY-2013:15:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 02 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 02 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 02 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P4 1 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 02 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P4 1 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 02 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P4 1 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 02 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P4 1 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 02 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 02 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit O2 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 03 - Pluto System Orbits in Support of New Horizons

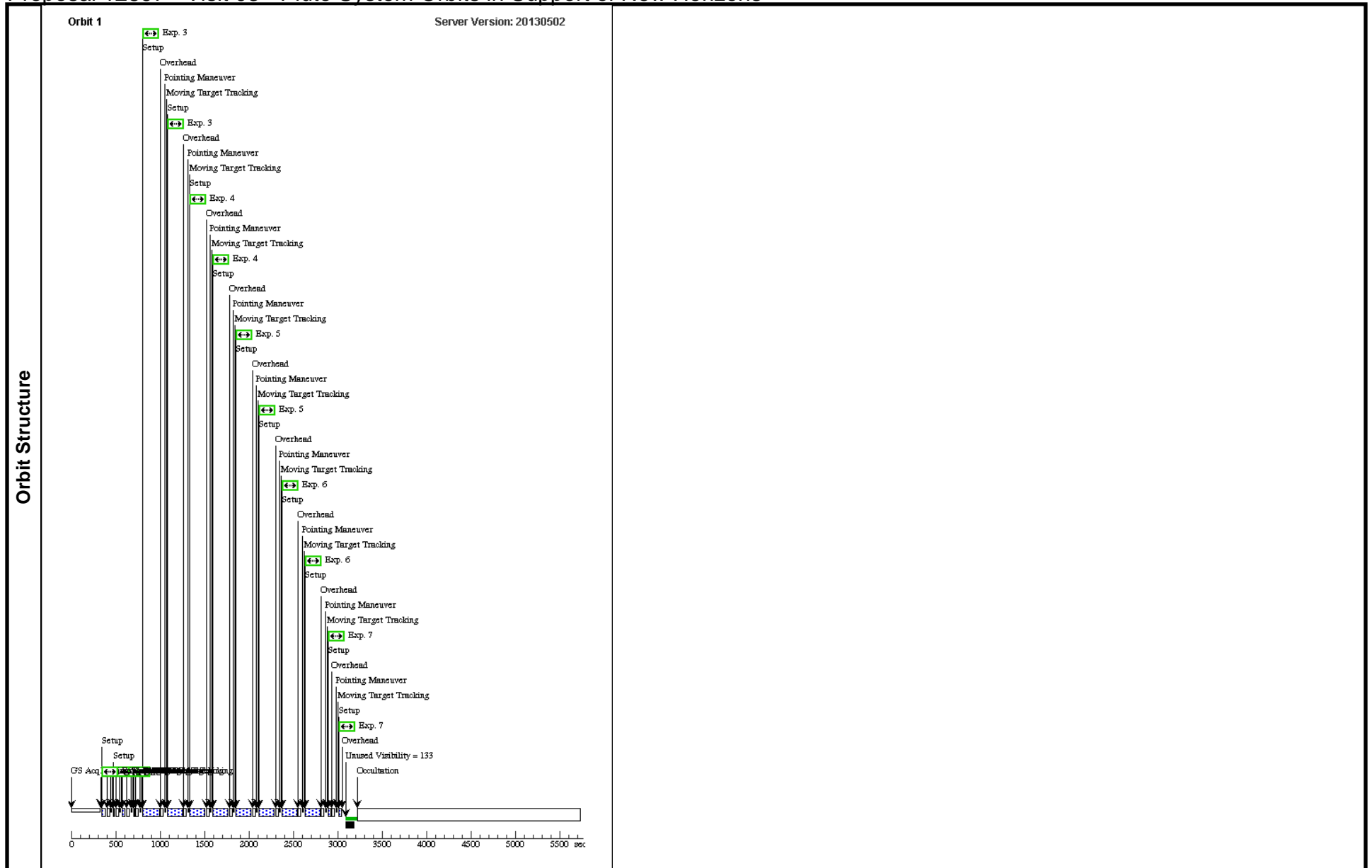
Fri Jul 19 01:05:09 GMT 2013

Visit	<p>Proposal 12897, Visit 03, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 259D TO 259 D; BETWEEN 31-MAY-2013:19:00:00 AND 01-JUN-2013:00:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 03 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 03 (2)	12 Secs (24 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 03 (2)	12 Secs (24 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	Satellite P41 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 03 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	Satellite P41 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 03 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	Satellite P41 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 03 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	Satellite P41 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 03 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	Satellite medium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 03 (2)	30 Secs (60 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]

Proposal 12897 - Visit 03 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 04 - Pluto System Orbits in Support of New Horizons

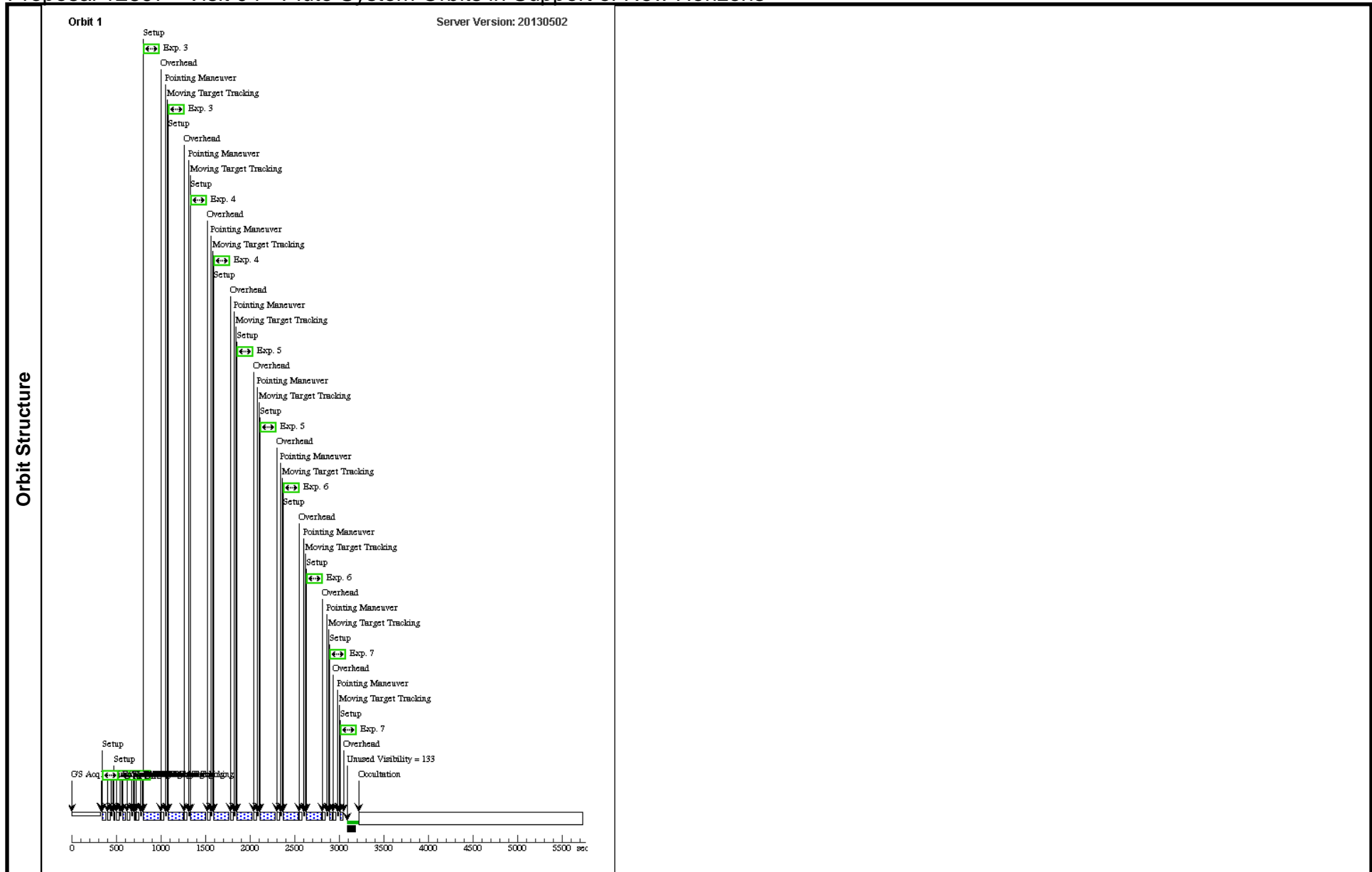
Fri Jul 19 01:05:11 GMT 2013

Visit	<p>Proposal 12897, Visit 04, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 260D TO 260 D; BETWEEN 08-JUN-2013:18:30:00 AND 09-JUN-2013:00:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 04 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 04 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 04 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P4 1 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 04 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P4 1 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 04 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P4 1 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 04 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P4 1 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 04 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 04 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit 04 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 05 - Pluto System Orbits in Support of New Horizons

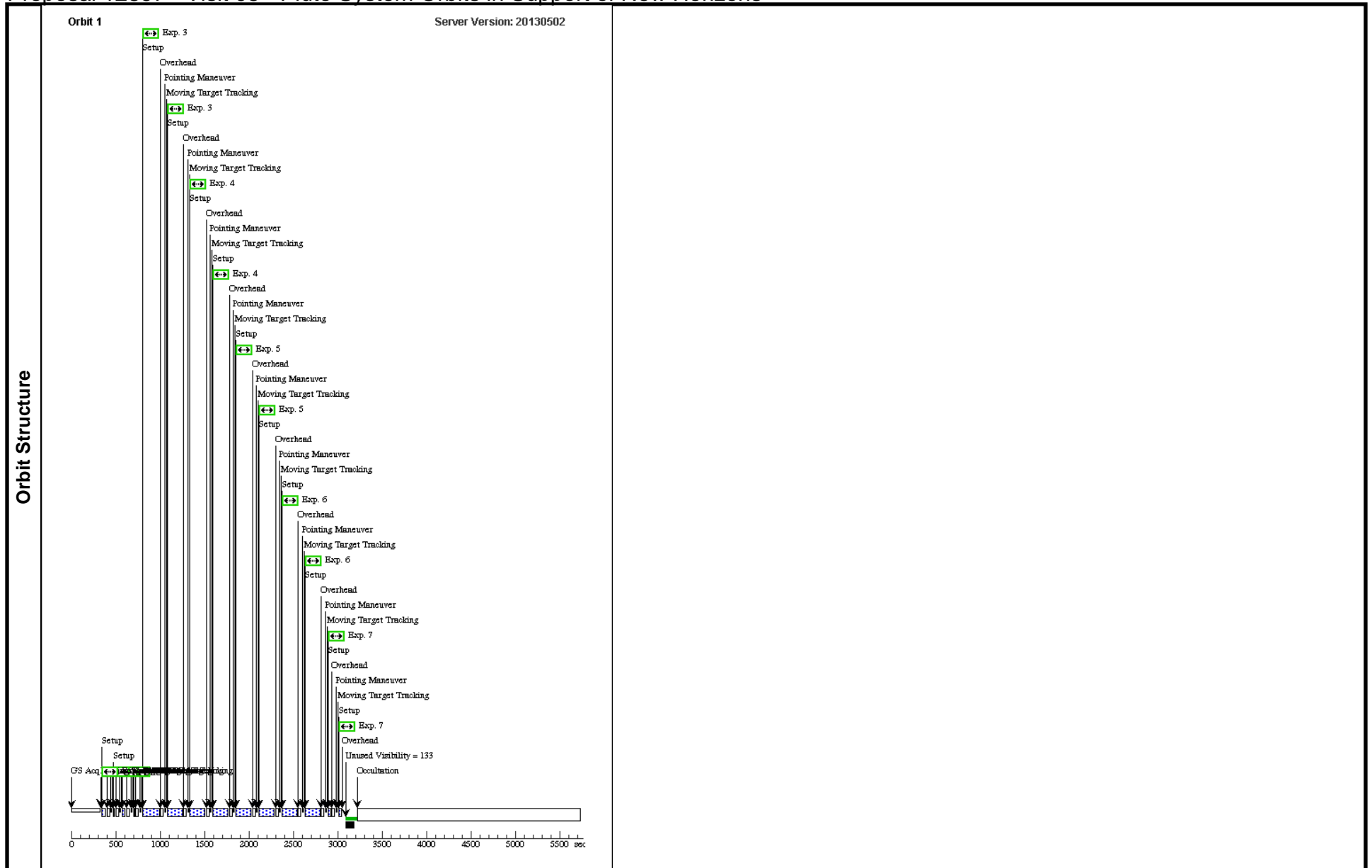
Fri Jul 19 01:05:12 GMT 2013

Visit	<p>Proposal 12897, Visit 05, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 252D TO 252 D; BETWEEN 17-JUN-2013:21:00:00 AND 18-JUN-2013:05:30:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 05 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044;	Pattern 2, Exps 1-1 in Visit 05 (2)	12 Secs (24 Secs)	
									[==>(Pattern 1)]	[1]
							GS ACQ SCENARIO BASE1B3		[==>(Pattern 2)]	
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 05 (2)	12 Secs (24 Secs)	
									[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	
	3	Satellite P41 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 05 (2)	170 Secs (340 Secs)	
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]		
4	Satellite P41 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 05 (2)	170 Secs (340 Secs)		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]		
5	Satellite P41 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 05 (2)	170 Secs (340 Secs)		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]		
6	Satellite P41 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 05 (2)	170 Secs (340 Secs)		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]		
7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 05 (2)	30 Secs (60 Secs)		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]		

Proposal 12897 - Visit 05 - Pluto System Orbits in Support of New Horizons



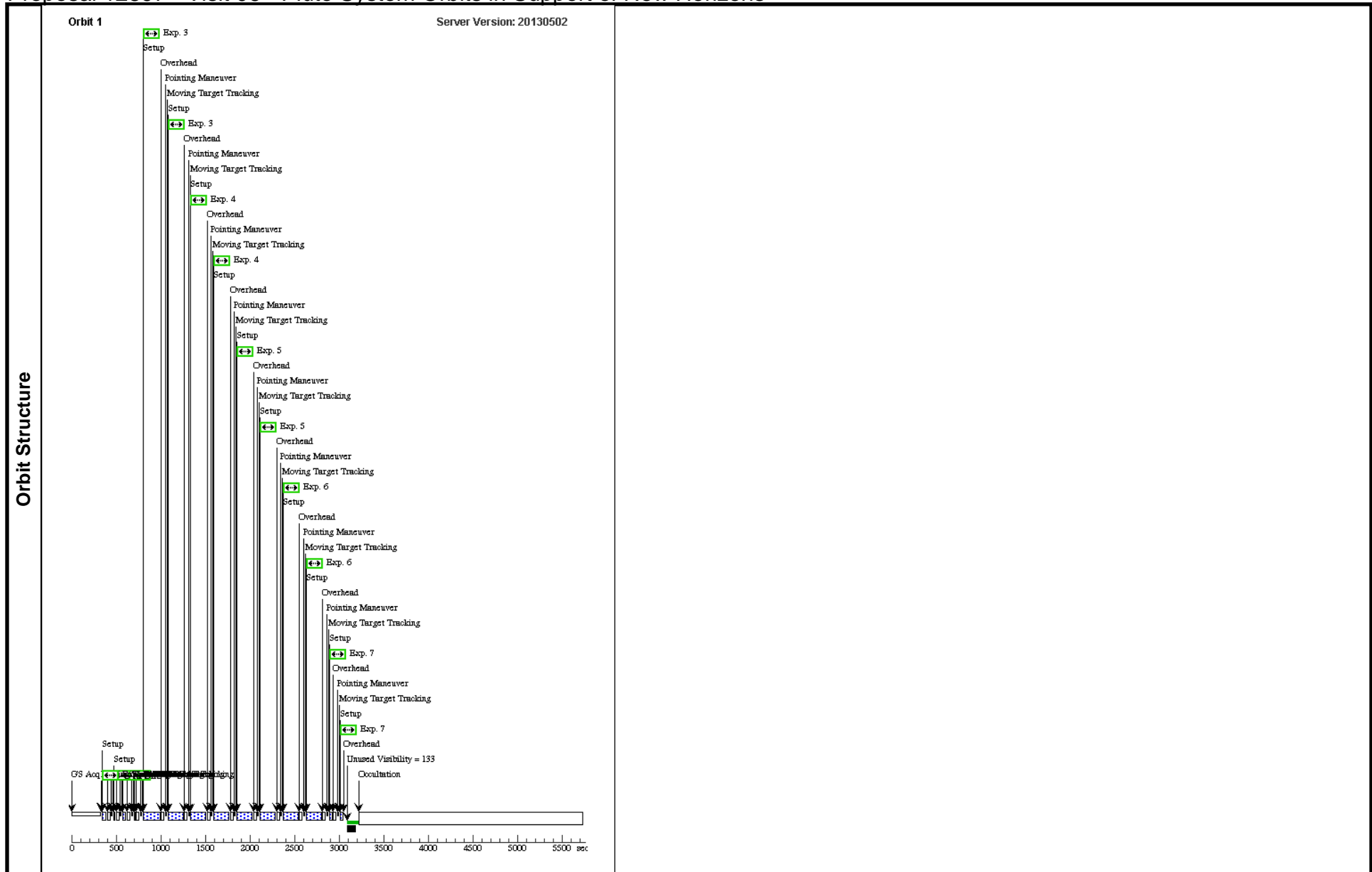
Proposal 12897 - Visit 06 - Pluto System Orbits in Support of New Horizons

Fri Jul 19 01:05:14 GMT 2013

Visit	<p>Proposal 12897, Visit 06, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 177D TO 177 D; BETWEEN 01-JUL-2013:17:00:00 AND 01-JUL-2013:21:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 06 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 06 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 06 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P41 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 06 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P41 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 06 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P41 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 06 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P41 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 06 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 06 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 12897 - Visit 07 - Pluto System Orbits in Support of New Horizons

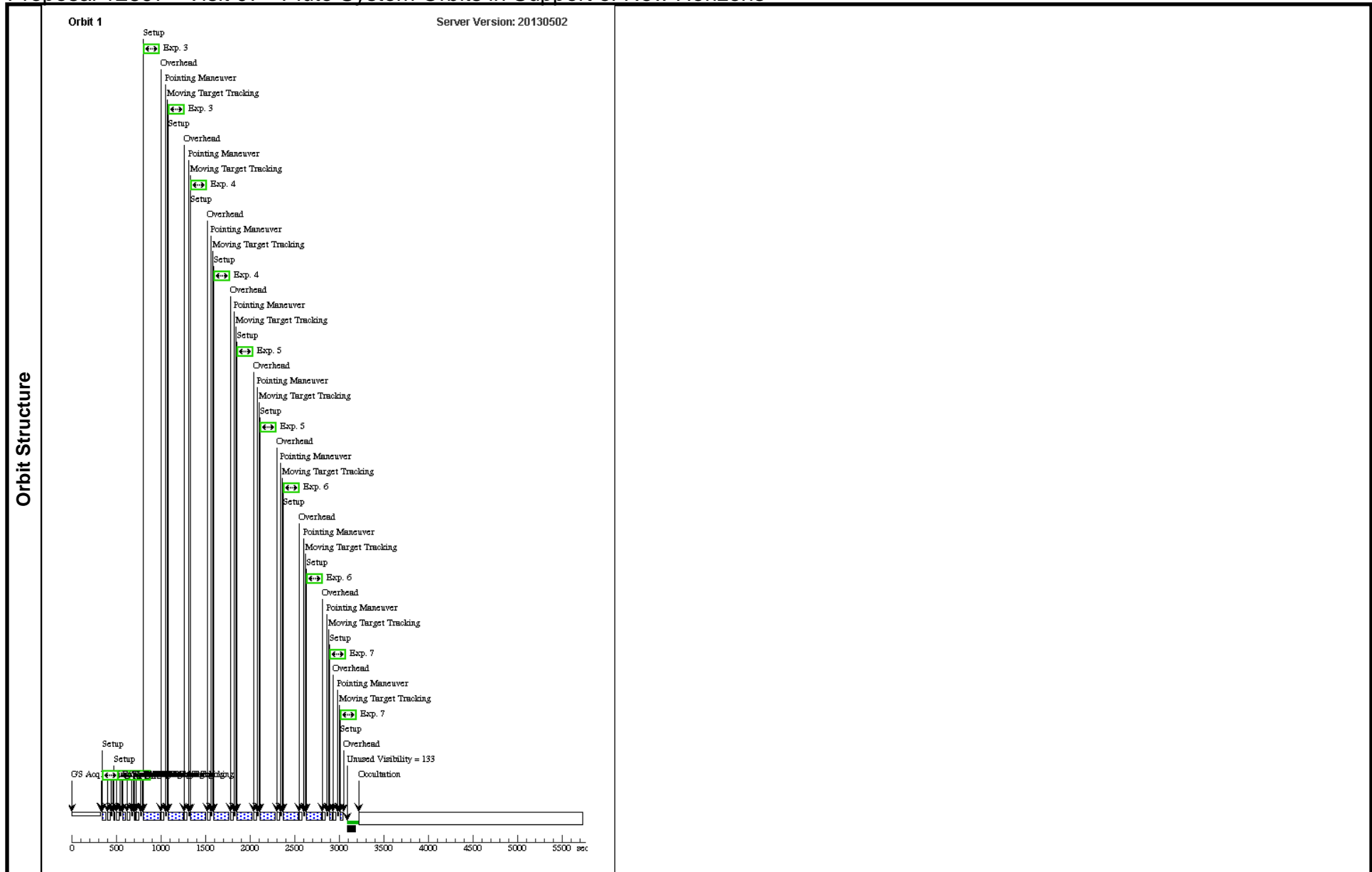
Fri Jul 19 01:05:15 GMT 2013

Visit	<p>Proposal 12897, Visit 07, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 108D TO 108 D; BETWEEN 09-JUL-2013:16:30:00 AND 09-JUL-2013:23:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 07 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 07 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 07 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P41 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 07 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P41 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 07 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P41 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 07 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P41 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 07 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 07 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit 07 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 08 - Pluto System Orbits in Support of New Horizons

Fri Jul 19 01:05:17 GMT 2013

Visit	<p>Proposal 12897, Visit 08, completed</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 108D TO 108 D; BETWEEN 12-JUL-2013:21:00:00 AND 13-JUL-2013:04:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 08 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 08 (2)	12 Secs (24 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 08 (2)	12 Secs (24 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	Satellite P4 1 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 08 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	Satellite P4 1 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 08 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	Satellite P4 1 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 08 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	Satellite P4 1 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 08 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 08 (2)	30 Secs (60 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]

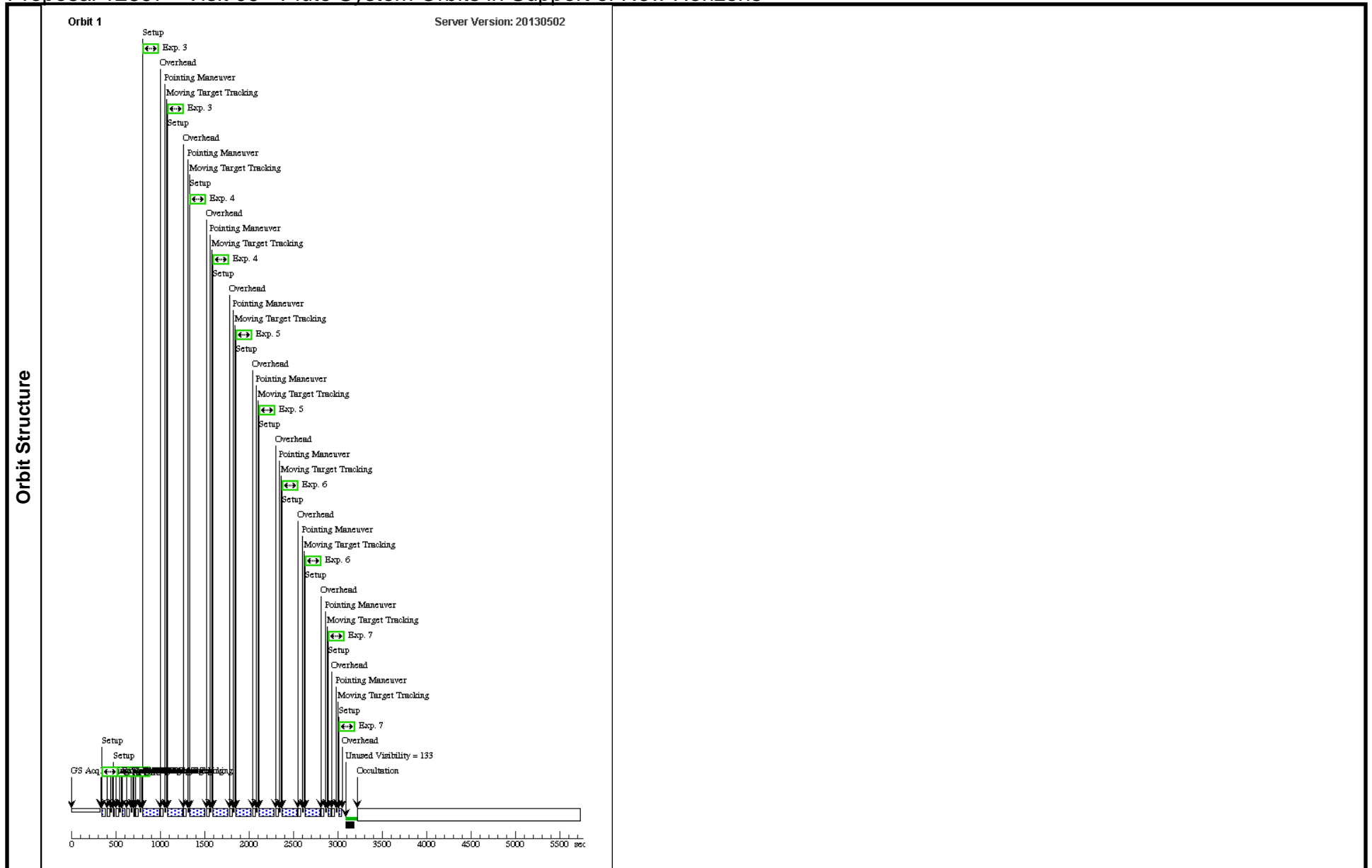
Proposal 12897 - Visit 09 - Pluto System Orbits in Support of New Horizons

Fri Jul 19 01:05:18 GMT 2013

Visit	<p>Proposal 12897, Visit 09, scheduled</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 94D TO 94 D; BETWEEN 21-JUL-2013:09:00:00 AND 22-JUL-2013:11:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 09 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 09 (2)	12 Secs (24 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 09 (2)	12 Secs (24 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	Satellite P4 1 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 09 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	Satellite P4 1 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 09 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	Satellite P4 1 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 09 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	Satellite P4 1 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 09 (2)	170 Secs (340 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 09 (2)	30 Secs (60 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 12897 - Visit 10 - Pluto System Orbits in Support of New Horizons

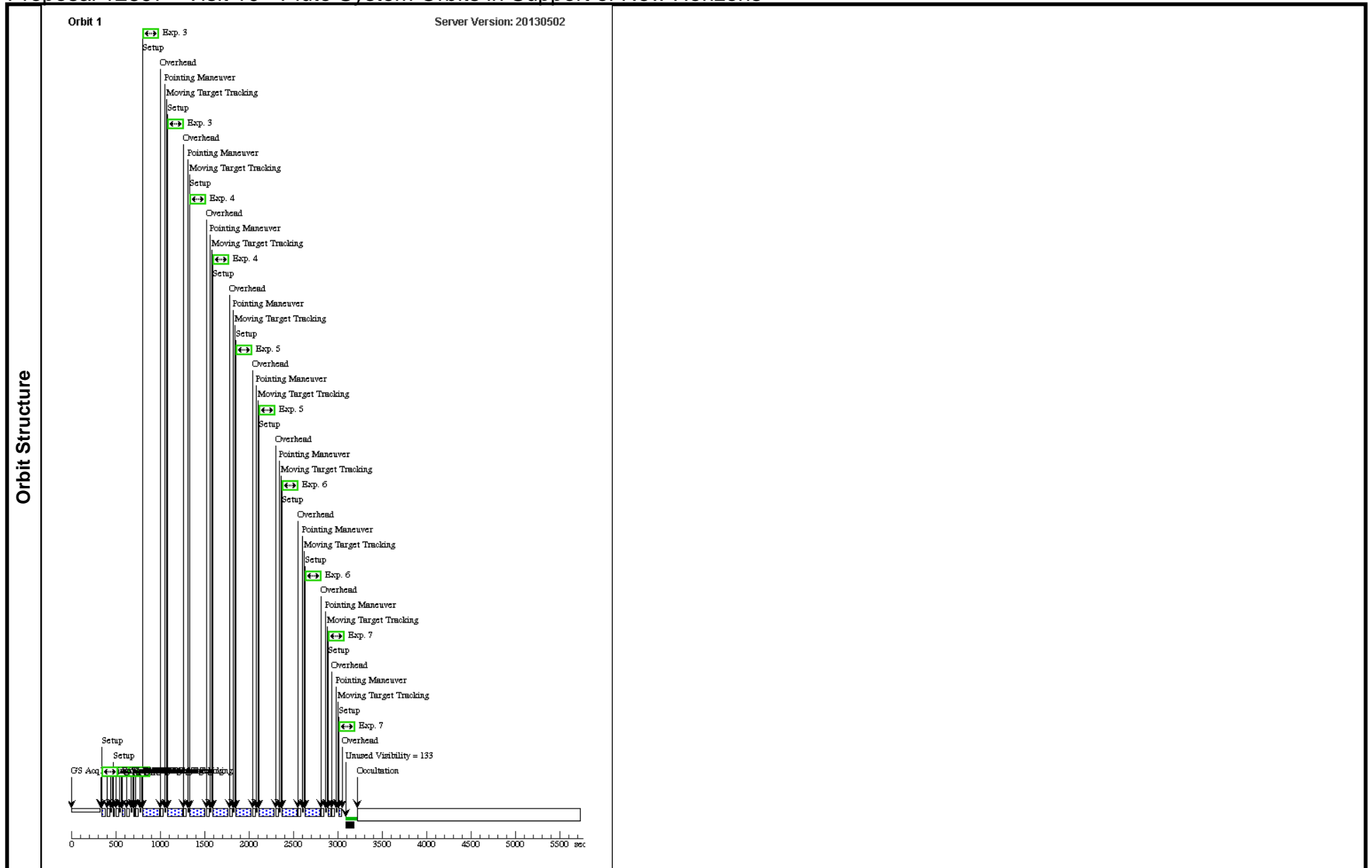
Fri Jul 19 01:05:20 GMT 2013

Visit	<p>Proposal 12897, Visit 10, scheduling</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 85D TO 85 D; BETWEEN 31-JUL-2013:12:00:00 AND 31-JUL-2013:17:00:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 10 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 10 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 10 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P4 1 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 10 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P4 1 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 10 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P4 1 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 10 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P4 1 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 10 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 10 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit 10 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 11 - Pluto System Orbits in Support of New Horizons

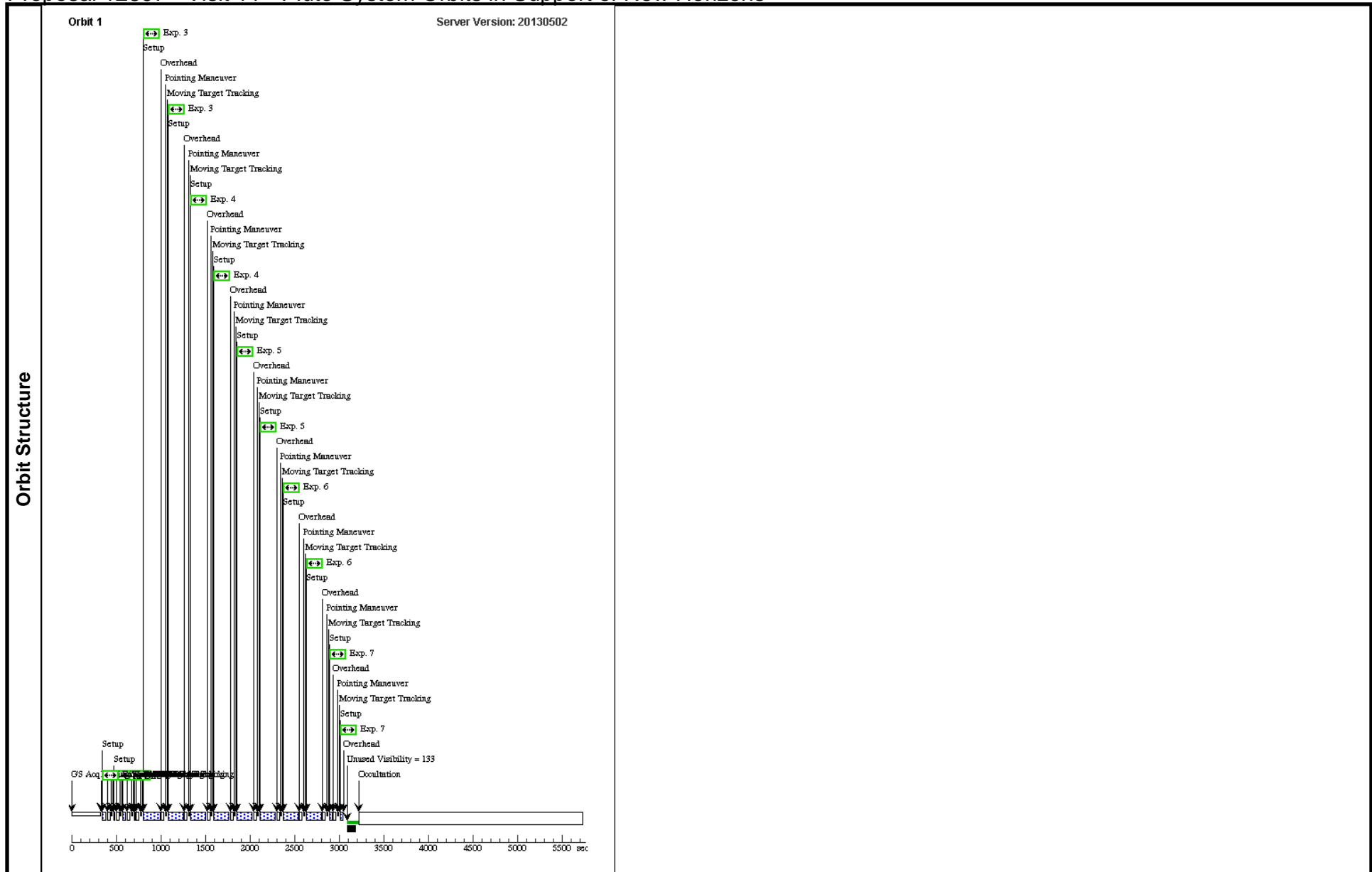
Fri Jul 19 01:05:21 GMT 2013

Visit	<p>Proposal 12897, Visit 11, scheduling</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 88D TO 88 D; BETWEEN 21-AUG-2013:07:00:00 AND 21-AUG-2013:11:30:00</p> <p><i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i></p>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 11 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 11 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 11 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P4 1 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 11 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P4 1 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 11 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P4 1 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 11 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P4 1 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 11 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite me dium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 11 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit 11 - Pluto System Orbits in Support of New Horizons



Proposal 12897 - Visit 12 - Pluto System Orbits in Support of New Horizons

Fri Jul 19 01:05:22 GMT 2013

Visit	Proposal 12897, Visit 12, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 82D TO 82 D; BETWEEN 13-SEP-2013:03:40:00 AND 13-SEP-2013:09:00:00 <i>Comments: The set of visits provided is a linked set of observations to provide a very specific observational cadence of the Pluto system. It is specially chosen to optimize the coverage of the system given the three major periods (Charon, Nix, and Hydra orbital periods). Visits 2-12 are linked to visit 1 rather than to each other so that the entire pattern is not destroyed by a compromise to any single visit. The scheduling window is provided at 12 hours long (+/- 6 hours from nominal) to make the program more easily schedulable. The actual length of this window may not be critical (though we'd rather not extend it much longer than this without considerable thought). Visit 6 has a special timing constraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.</i>						
	Patterns	#	Primary Pattern		Secondary Pattern		Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2), (3), (4), (5), (6), (7)	
Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Proposal 12897 - Visit 12 - Pluto System Orbits in Support of New Horizons

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Pluto Blue	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F438W	CR-SPLIT=NO	POS TARG 3.96520, 0.294044; GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in Visit 12 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2	Pluto Green	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F555W	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 2-2 in Visit 12 (2)	12 Secs (24 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	3	Satellite P41 ong1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 3-3 in Visit 12 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	4	Satellite P41 ong2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.87621, 0.277764	Pattern 2, Exps 4-4 in Visit 12 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	5	Satellite P41 ong3	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.96520, 0.294044	Pattern 2, Exps 5-5 in Visit 12 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	6	Satellite P41 ong4	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 4.01977, 0.213238	Pattern 2, Exps 6-6 in Visit 12 (2)	170 Secs (340 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	7	Satellite medium	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F350LP	CR-SPLIT=NO	POS TARG 3.93039, 0.197157	Pattern 2, Exps 7-7 in Visit 12 (2)	30 Secs (60 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

Proposal 12897 - Visit 12 - Pluto System Orbits in Support of New Horizons

