11556 - Investigations of the Pluto System

Cycle: 17, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:03:11.0	yes
02	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:03:28.0	yes
03	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:03:43.0	yes
04	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:03:57.0	yes
05	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:04:11.0	yes
06	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:04:23.0	yes
07	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:04:37.0	yes
08	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:04:49.0	yes
09	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:05:02.0	yes
10	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:05:16.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
11	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:05:29.0	yes
12	(1) PLUTO-SYSTEM	WFC3/UVIS	1	03-Mar-2010 21:05:40.0	yes

12 Total Orbits Used

ABSTRACT

We propose a set of high SNR observations of the Pluto system that will provide improved lightcurves, orbits, and photometric properties of Nix and Hydra. The key photometric result for Nix and Hydra will be a vastly improved lightcurve shape and rotation period to test if the objects are in synchronous rotation or not. A second goal of this program will be to retrieve a new epoch of albedo map for the surface of Pluto. These observations will also improve masses and in some case densities for the bodies in the Pluto system.

OBSERVING DESCRIPTION

This proposal contains a sequence of images of the Pluto system that is carefully timed to collect astrometry, photometry, and imaging data spaced out over a substantial fraction of a Pluto observing season. The observing cadence is set to optimally sample all of the perioidicities in the system (6.4-day, 38.4-day, and 51.2-day) over at least two periods for all variations while avoiding a systematic influence of solar phase angle. The provided cadence of the visits is strictly controlled in relative timing but the entire pattern can be shifted somewhat for schedulability. The observing pattern within each orbit is identical

except for a small adjustment to the longest exposure time to ensure maximal usage of the target visibility window through the Cycle.
The sequences of long, medium, and short exposures are required to retain astrometric and photometric information for this system given the wide range of target brightnesses (V=13.1 to 23.5). Each set of 4 like exposures use an optimize 4-point dithering pattern and the patterns for all exposures are themselves offset so that no fractional x or y position is repeated between an two exposures within a visit. The dithering pattern combines a small-offset pattern and a large-offset pattern intended to protect against systematic photometric and astrometric effects. All of the clear (F350LP) exposure sets are broken up within the orbit to provide for some temporal sampling within a visit. The F438W and F555W filter observations were not broken up because of the extra overhead that would have been incurred for the extra filter changes. The short clear exposures and the F555W data are largely to provide an accurate astrometric framework for the satellite astrometry. The F555W filter is the only one where the center-of-light to center-of-body offsets for Pluto are well enough calibrated to allow accurate placing of the system center-of-mass. These observations are required to bootstrap the reductions for the other filters. A 512 pixel sub-array was chosen to minimize the amount of data collected and thus avoid data dump overhead during the visibility window. The FOV of the sub-array is twice the size of the Pluto system and even with dithering and pointing uncertainties the system will fit on the image.

Visit

Proposal 11556, Visit 01, implementation Thu Mar 04 02:05:45 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

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 contraint, see comments there. The visits are sorted by time but are pseudo-random in sub-earth longitude on each body.

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), (8), (9), (10)

Solar System Targets

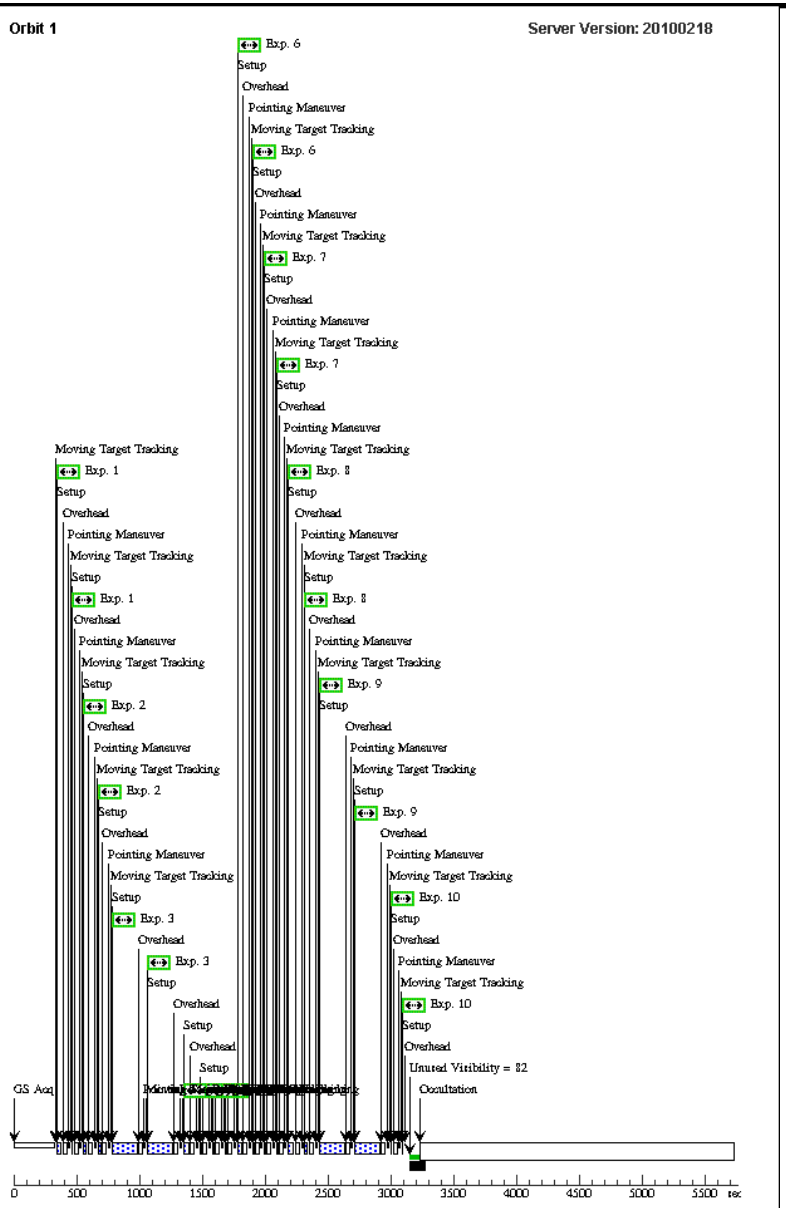
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 02, implementation Thu Mar 04 02:05:47 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 26.8956 D TO 27.3956 D

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), (8), (9), (10)

Solar System Targets

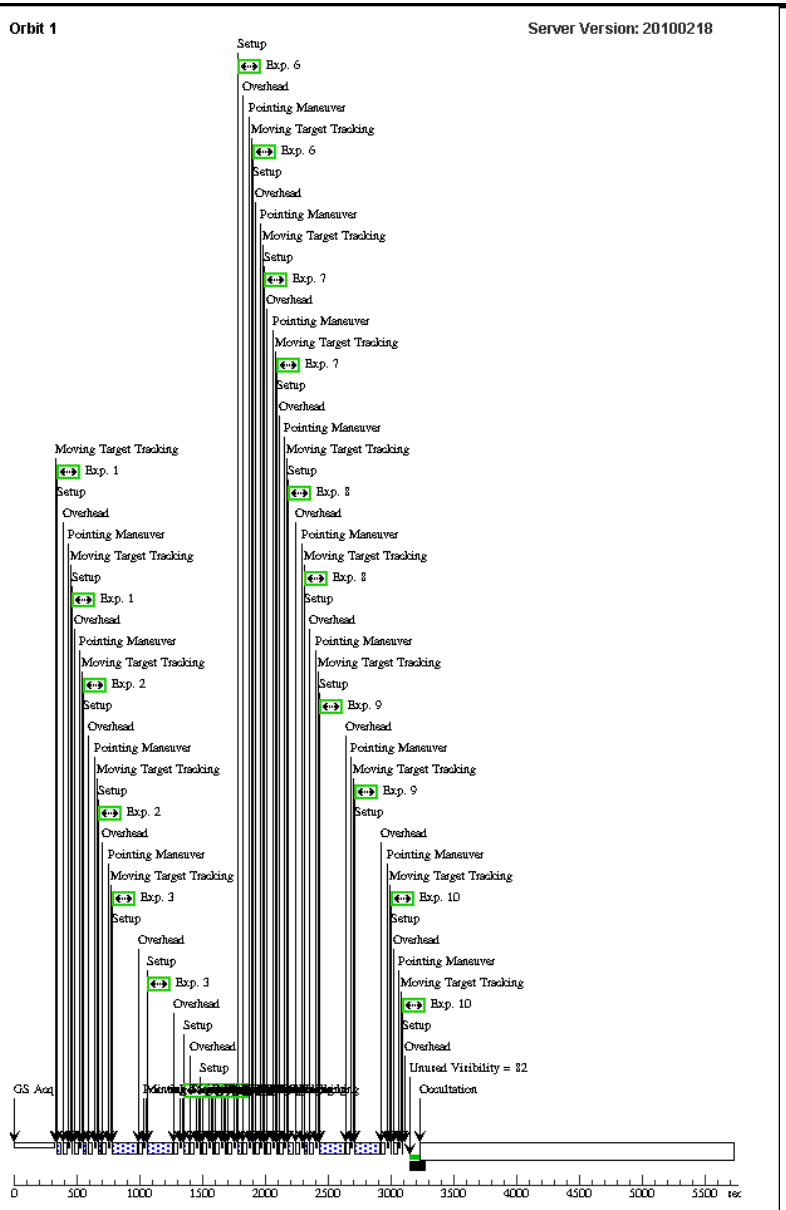
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 03, implementation Thu Mar 04 02:05:48 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 30.6215 D TO 31.1215 D

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), (8), (9), (10)

Solar System Targets

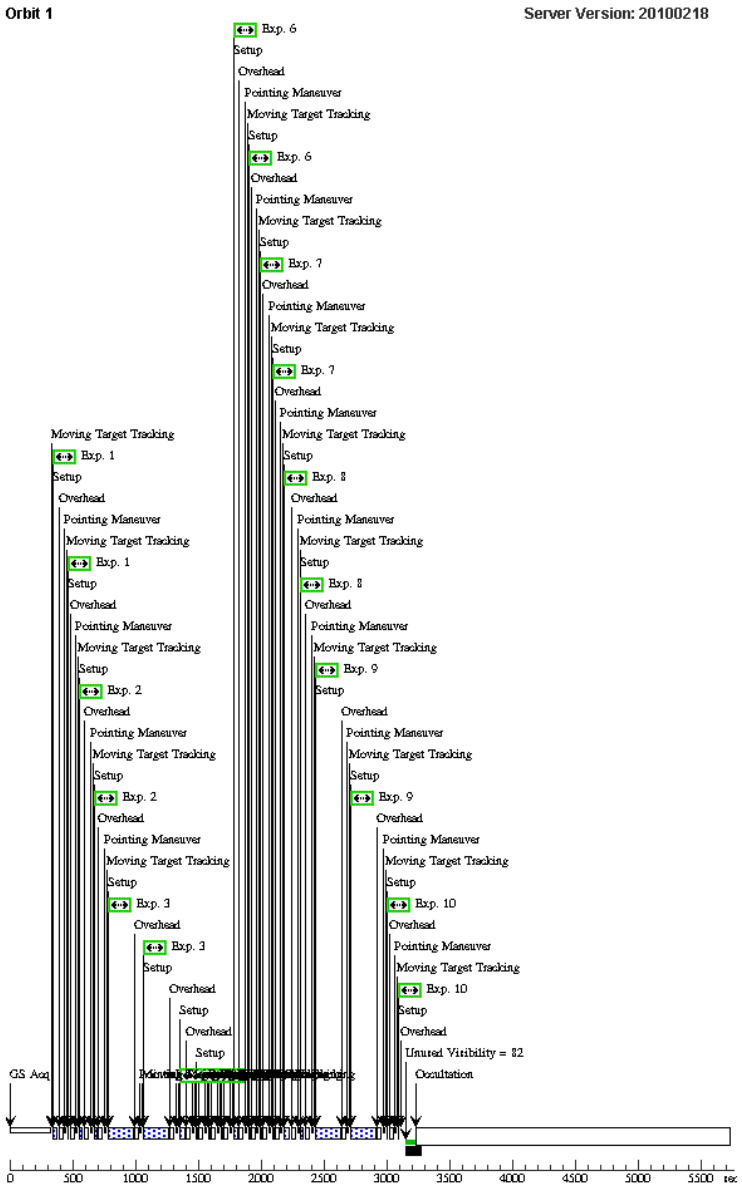
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 04, implementation Thu Mar 04 02:05:49 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 38.6055 D TO 39.1055 D

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), (8), (9), (10)

Solar System Targets

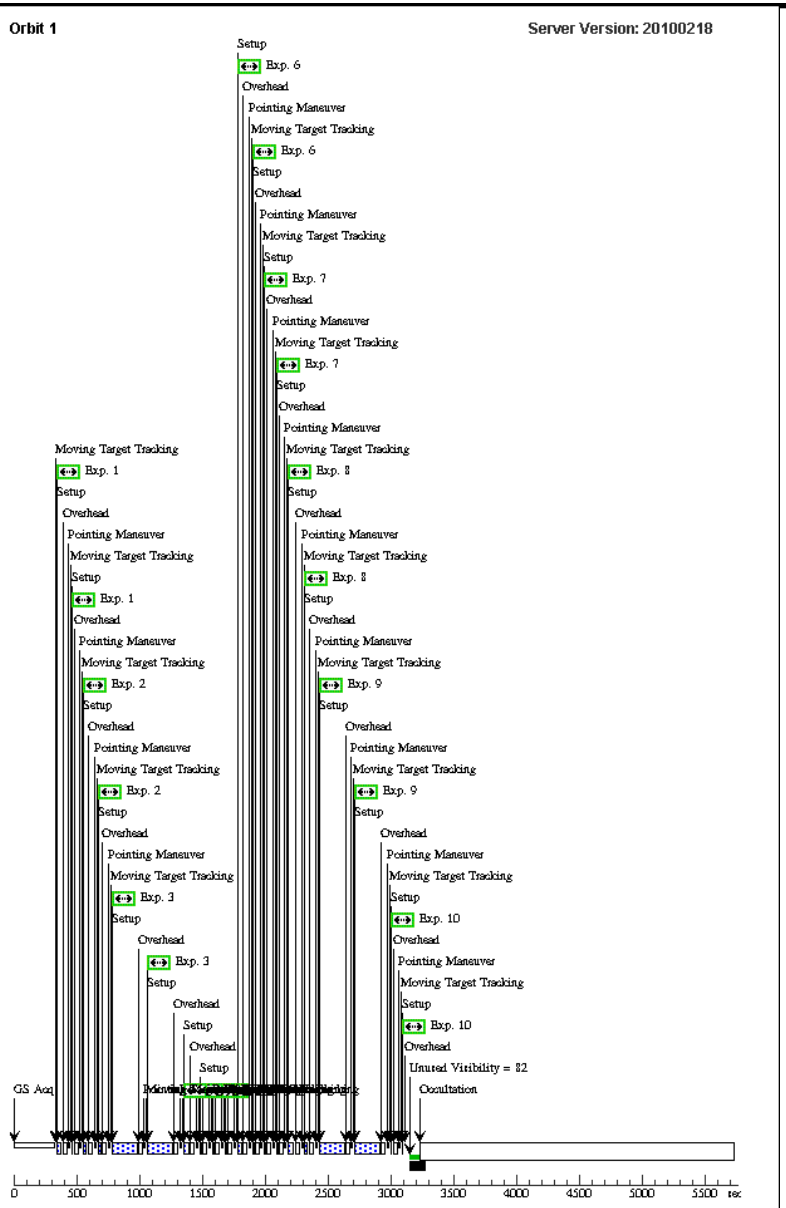
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 05, implementation Thu Mar 04 02:05:50 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 47.6540 D TO 48.1540 D

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), (8), (9), (10)

Solar System Targets

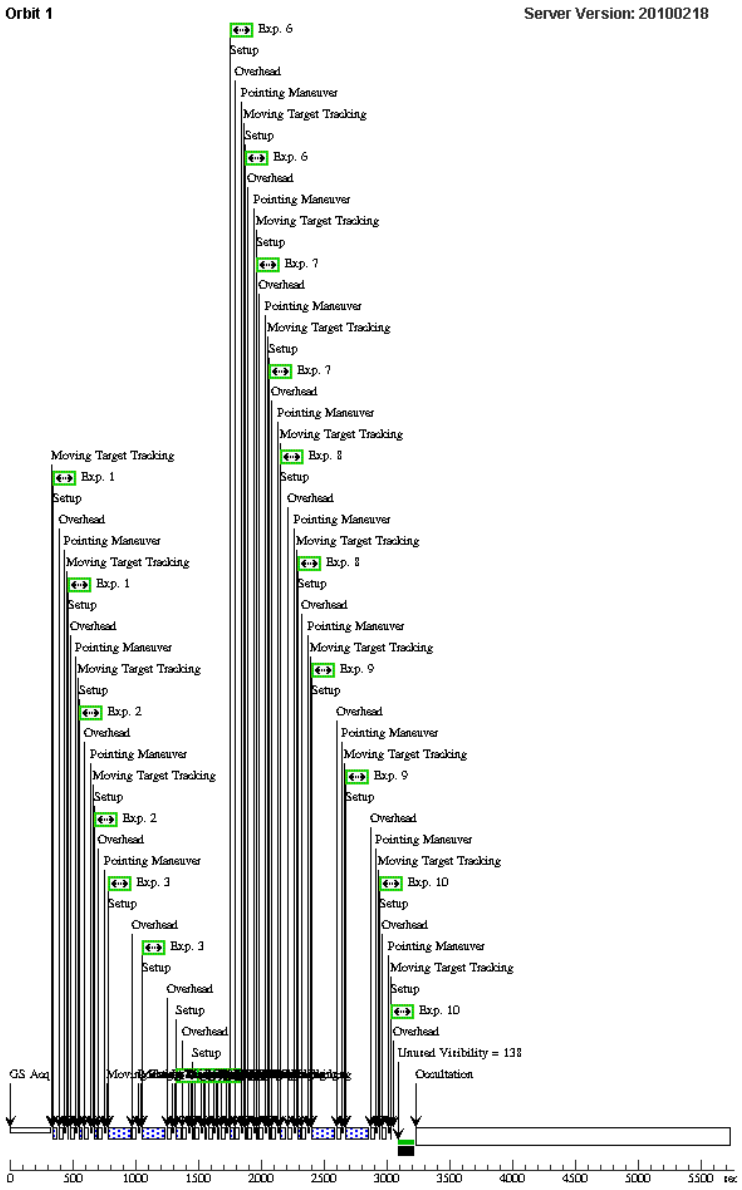
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	183 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	183 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 06, implementation Thu Mar 04 02:05:50 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 61.4930 D TO 61.9930 D; BETWEEN 25-JUN-2010:06:13:45 AND 26-JUN-2010:06:13:45; BETWEEN 17-JUN-2010:08:37:45 AND 18-JUN-2010:08:37:45

Comments: The timing constraint on this visit is provided to ensure that either Visit 6 or visit 7 falls within 12 hours of minimum phase angle in the 2010 apparition of Pluto. Doing so returns the optimal phase angle coverage pattern from our observational sequence.

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), (8), (9), (10)

Solar System Targets

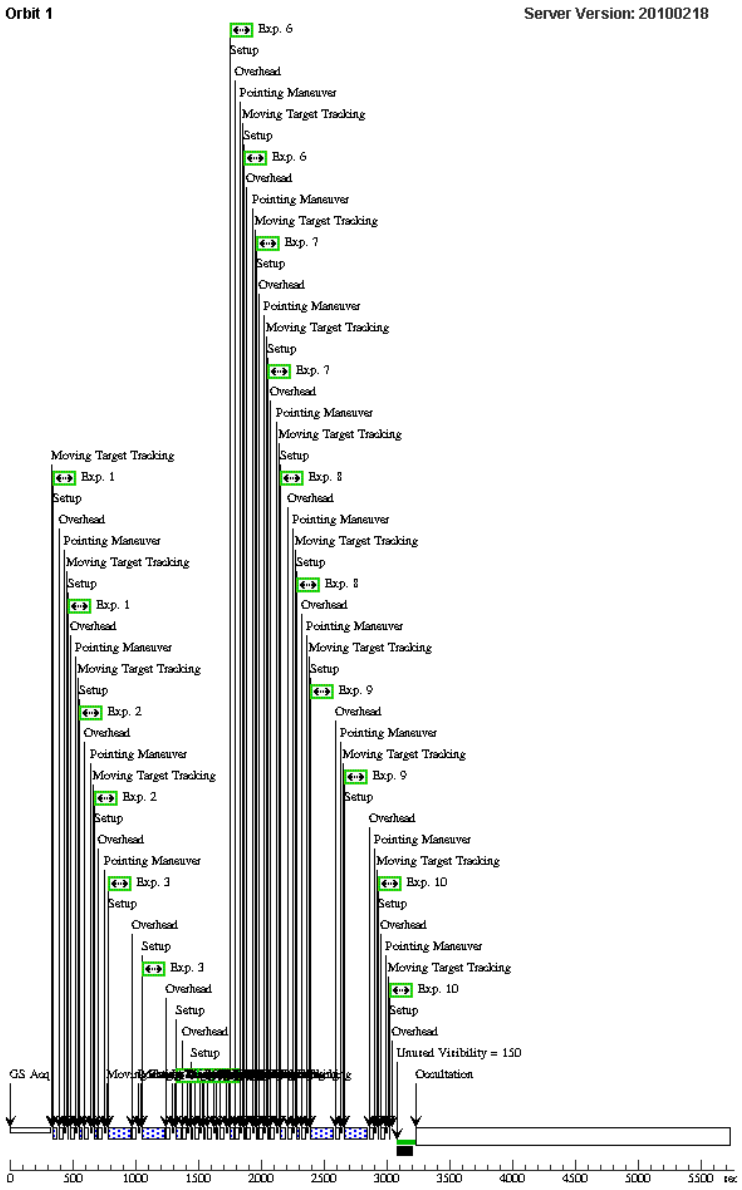
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	180 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	180 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 07, implementation Thu Mar 04 02:05:52 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 69.4770 D TO 69.9770 D

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), (8), (9), (10)

Solar System Targets

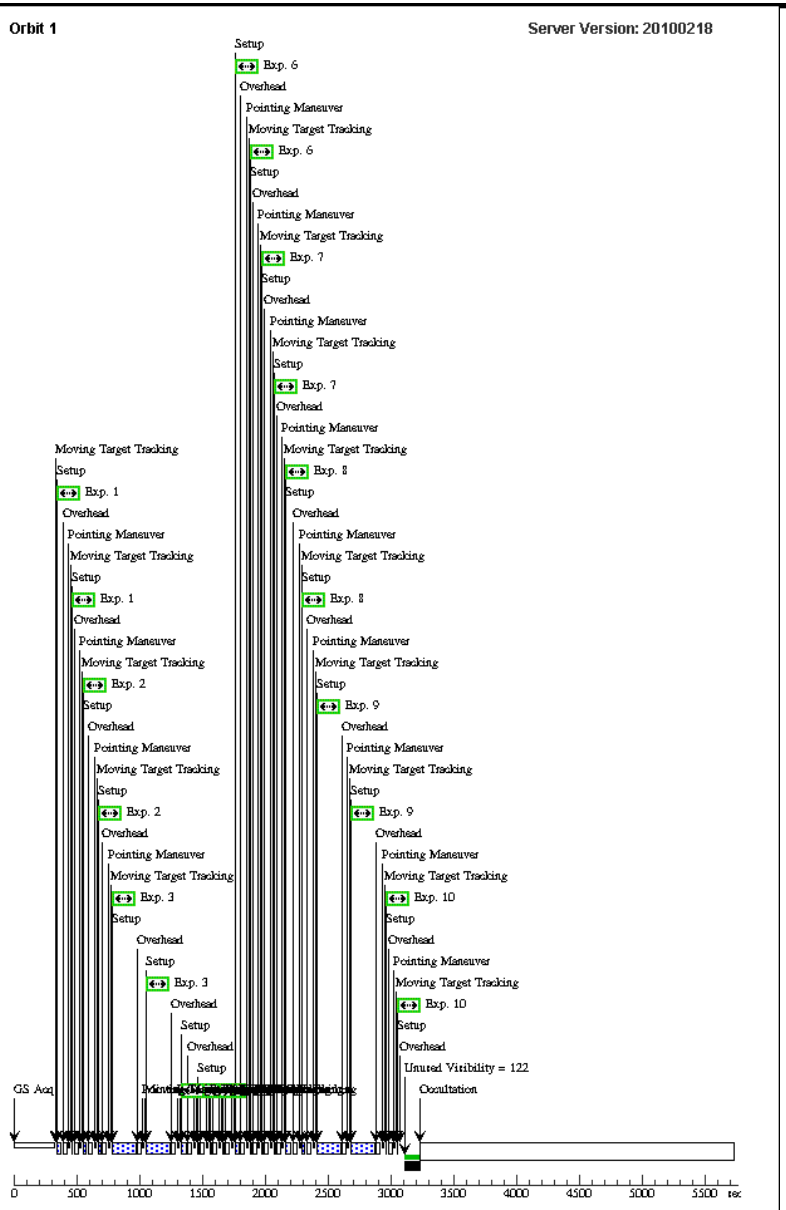
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	187 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	187 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 08, implementation Thu Mar 04 02:05:52 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 72.6706 D TO 73.1706 D

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), (8), (9), (10)

Solar System Targets

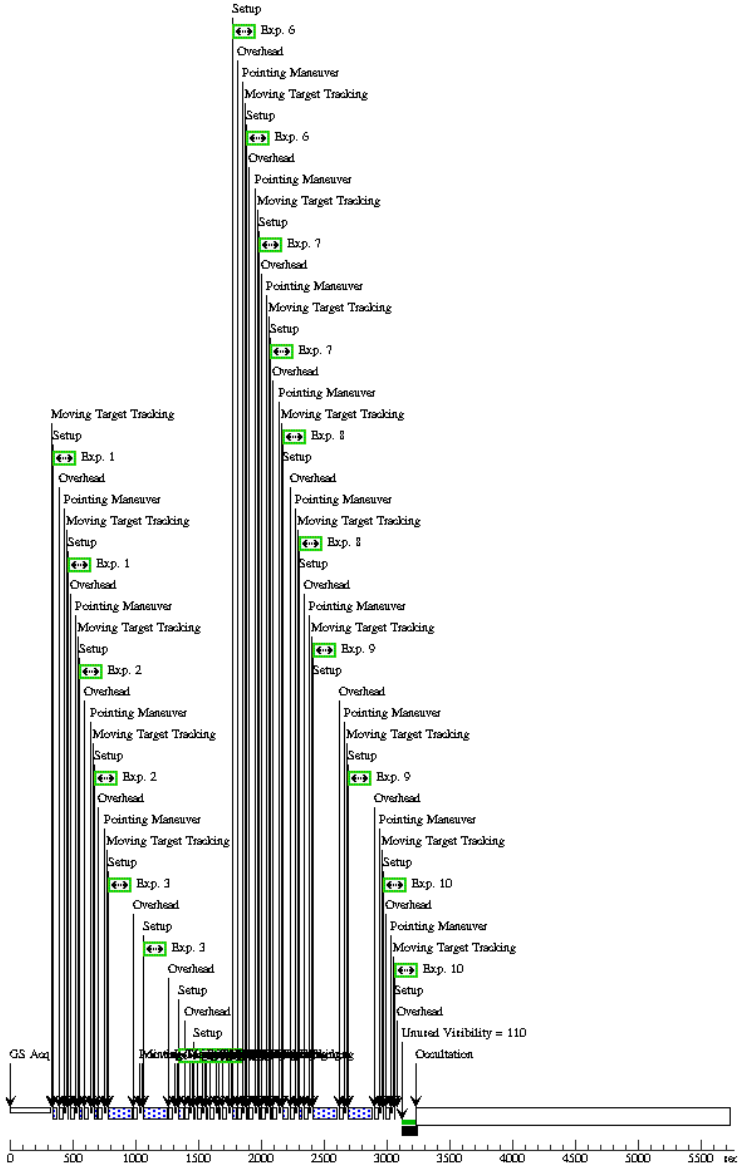
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	190 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	190 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 09, implementation Thu Mar 04 02:05:53 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 81.1869 D TO 81.6869 D

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), (8), (9), (10)

Solar System Targets

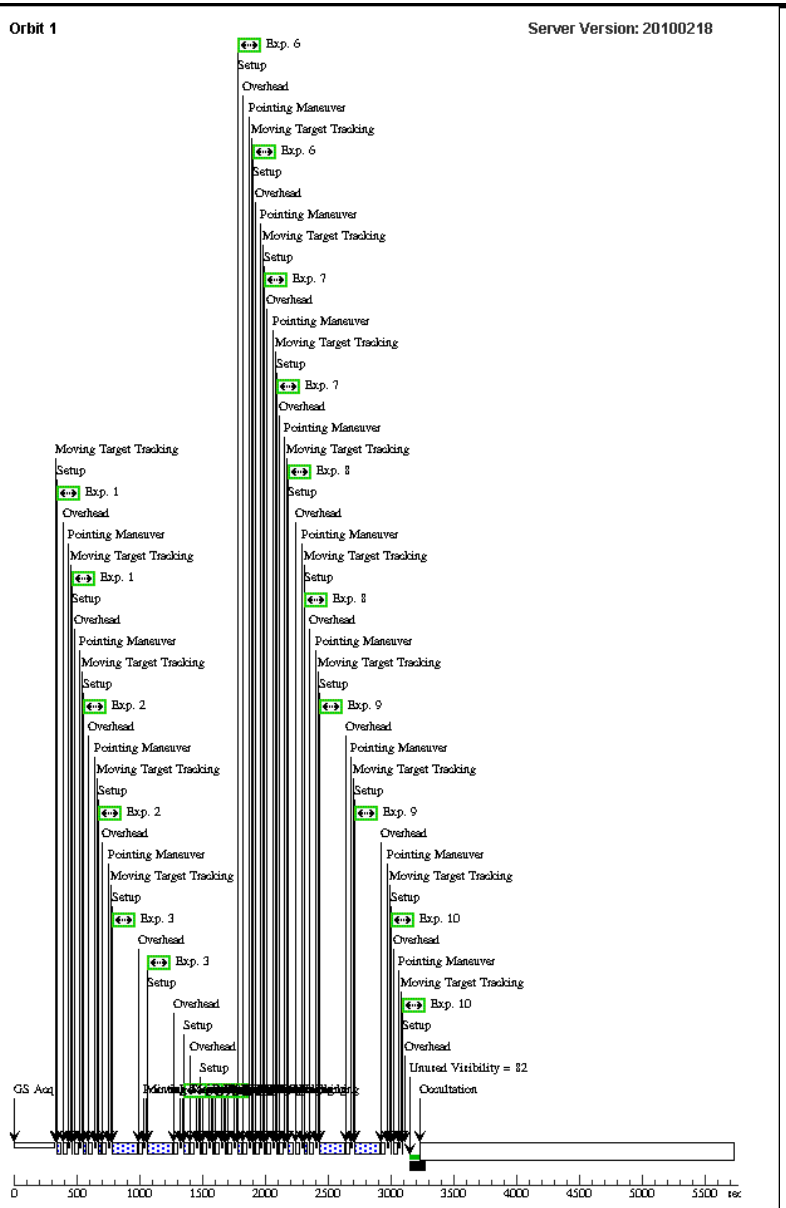
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 10, implementation Thu Mar 04 02:05:54 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 91.3000 D TO 91.8000 D

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), (8), (9), (10)

Solar System Targets

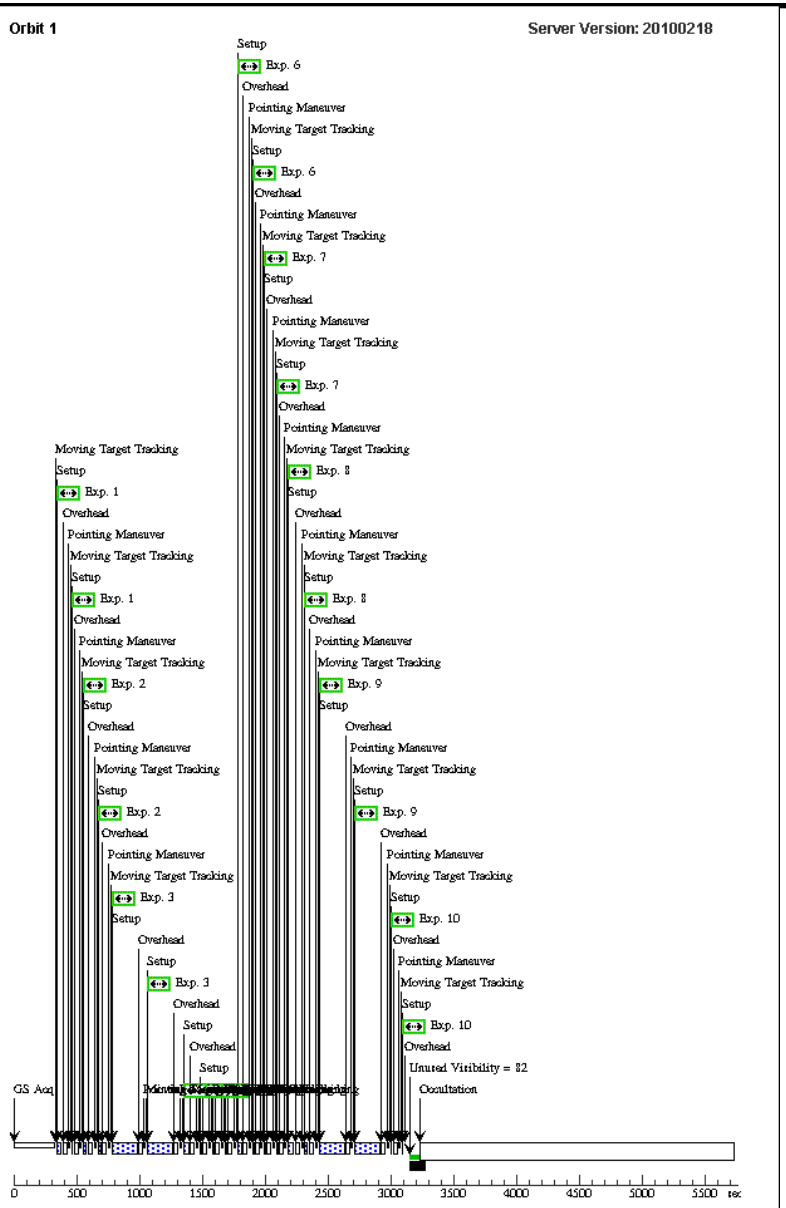
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 11, implementation Thu Mar 04 02:05:55 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 112.0584 D TO 112.5584 D

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), (8), (9), (10)

Solar System Targets

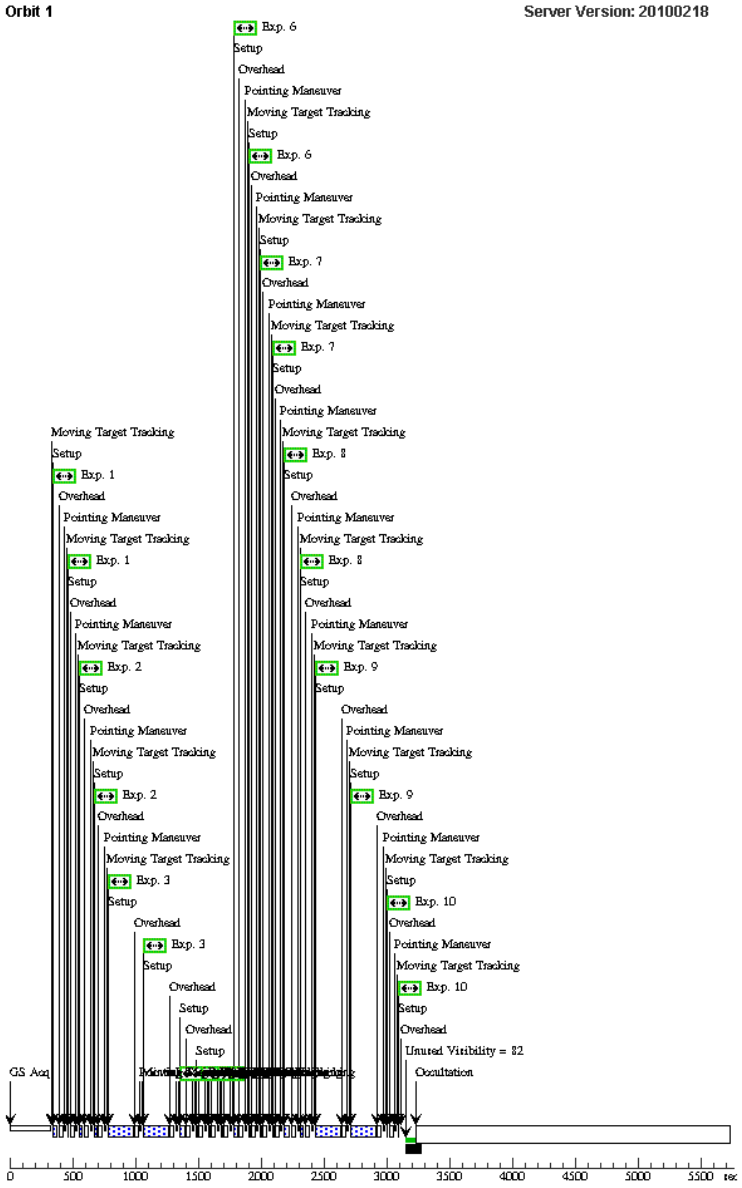
#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure



Visit

Proposal 11556, Visit 12, implementation Thu Mar 04 02:05:55 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 134.9459 D TO 135.4459 D

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), (8), (9), (10)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	PLUTO-SYSTEM	STD=PLUTO				EARTH

Comments: Flux given is for Pluto at 1-degree phase angle, lightcurve mean, and at the opposition distance for 2010. For the same conditions Charon will be V=16.4, Nix will be V=23.3, and Hydra will be V=22.7. The pointing request assumes barycentric pointing but the field of view is large enough that Pluto body-center pointing would work just as well.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Pluto CS1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1174, -0.0509	Pattern 2, Exps 1-1 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	Satellite CM 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0568 ,-0.0481	Pattern 2, Exps 2-2 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	Satellite CL 1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0631,-0.0512	Pattern 2, Exps 3-3 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
4	Pluto B1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0050,-0.0565	Pattern 2, Exps 4-4 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
5	Pluto B2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F438W	CR-SPLIT=NO	POS TARG 0.0149,-0.0062	Pattern 2, Exps 5-5 (2)	12 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
6	Pluto V1	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0000,-0.0515	Pattern 2, Exps 6-6 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
7	Pluto V2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F555W	CR-SPLIT=NO	POS TARG 0.0099,-0.0012	Pattern 2, Exps 7-7 (2)	6 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
8	Satellite CM 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.0469, 0.0022	Pattern 2, Exps 8-8 (2)	23 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
9	Satellite CL 2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG 0.0730,-0.0009	Pattern 2, Exps 9-9 (2)	197 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
10	Pluto CS2	(1) PLUTO-SYSTEM	WFC3/UVIS, ACCUM, UVIS1-C512B-SUB	F350LP	CR-SPLIT=NO	POS TARG -0.1075, -0.0006	Pattern 2, Exps 10-10 (2)	3 Secs	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	

Orbit Structure