



16084 - The Disruption of a Dark Vortex on Neptune

Cycle: 27, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) NEPTUNE	WFC3/UVIS	1	16-Apr-2020 12:00:42.0	yes
02	(1) NEPTUNE	WFC3/UVIS	1	16-Apr-2020 12:00:45.0	yes
03	(1) NEPTUNE	WFC3/UVIS	1	16-Apr-2020 12:00:47.0	yes
04	(1) NEPTUNE	WFC3/UVIS	1	16-Apr-2020 12:00:49.0	yes
05	(1) NEPTUNE	WFC3/UVIS	1	16-Apr-2020 12:00:51.0	yes

5 Total Orbits Used

ABSTRACT

Neptune's dark spot, named "NDS-2018" for its discovery date, is drifting toward the equator, while all previous Hubble-discovered dark spots have drifted poleward or remained fixed in latitude. It is thus the first dark spot behaving like the Great Dark Spot discovered by Voyager 2. Its drift resembles published numerical simulations, one of which predicts a planet-wide disturbance once the vortex crosses a critical latitude near 15 degrees.

The complete evolution of dark spots on Neptune is poorly understood due to sparse temporal sampling. There is only one other spot besides NDS-2018 whose origin can also be pinpointed (to within a year), and only two dark spots have been observed during their dissipation phases. The proposed observations would thus create the only complete record of the origin, evolution, and dissipation of a single neptunian dark vortex. This is also the first opportunity to observe the conjectured vortex dissipation pathway involving equatorward drift and disruption. HST Neptune observations in January 2020 provide an early indication of an imminent break-up (conjectured, but never observed).

New observations are urgently requested as soon as Neptune emerges from HST's solar exclusion zone, in May 2020. If the vortex is still present, observations would measure the morphology, position, and drift of the vortex prior to disruption. But the potential also exists to witness a never-before seen planetary-scale disturbance. Either way, observations are needed prior to anticipated annual Neptune imaging (Sept/Oct 2020) in order to give the first constraints on the dissipation timescale of a dark vortex.

OBSERVING DESCRIPTION

A set of 4-5 identical orbits, equally spaced in longitude over one Neptune rotation (16 hours). We need to cover all possible longitudes because the longitudinal drift rate of NDS-2018 varied between 2018 and 2019 data, leading to large uncertainties in the longitude at the time of observation. The program must be executed after conjunction (Neptune exceeds 55 deg from the Sun on 2020-May-05). We request observations as soon as feasible (but not disruptive) during the period after conjunction. All timing constraints are described in more detail in the Visit 1 comments.

We mitigate unstable pixels by dithering both spatially and temporally (i.e., using Neptune's changing rotational phase to dither). The F467M filter provides the highest contrast for dark spots, so we acquire the most frames per orbit in this filter. The frames will be spread evenly throughout the orbit, to maximize the range of longitudes covered at low emission angle.

F467M (512K SUB)

Proposal 16084 (STScI Edit Number: 3, Created: Thursday, April 16, 2020 at 11:00:51 AM Eastern Standard Time) - Overview

F547M (512K SUB)

F763M (512K SUB)

F845M (512K SUB)

FQ619N

Proposal 16084 - Visit 01 - The Disruption of a Dark Vortex on Neptune

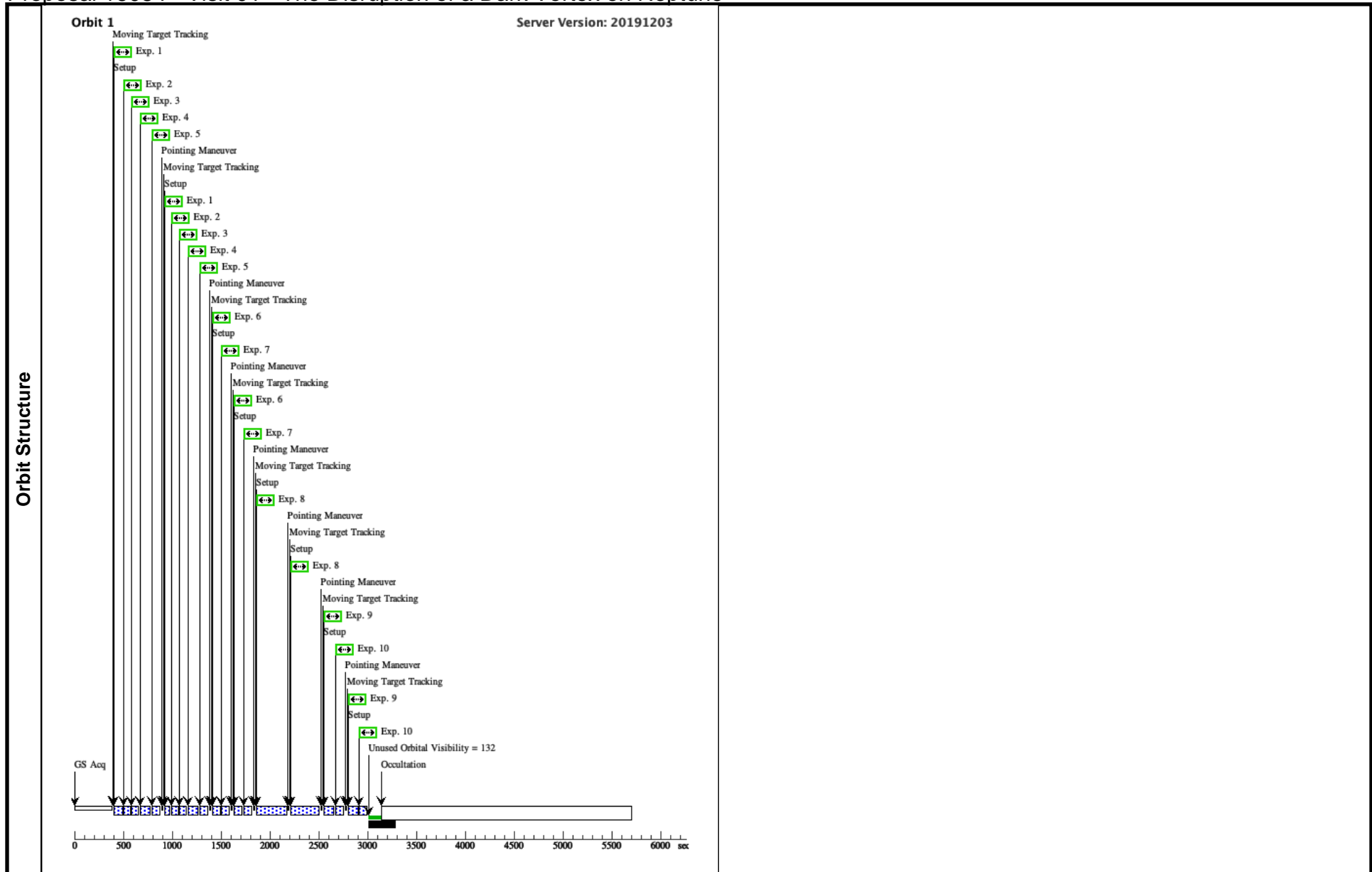
Thu Apr 16 16:00:51 GMT 2020

Visit	Proposal 16084, Visit 01, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 05-MAY-2020:10 AND 01-JUL-2020; SEQ 01,02,03,04,05 WITHIN 15 D <i>Comments: Desired visit timing is every other HST orbit. If this cannot be scheduled soon, then we can accept a pair of consecutive orbits (and thus a gap of 2 orbits) somewhere in the sequence. To capture this, we set a SEQ ALL VISITS WITHIN 15 HOURS condition.</i> <i>Visit 5 must start 8 or 9 orbits after visit 1 (12:44 to 14:20 after), to span a full Neptune rotation, so we set a VISIT 5 AFTER VISIT 1 BY 12 TO 15 HOURS condition.</i> <i>All visits must start after Neptune exceeds 55 deg solar elongation, so we set a AFTER 2020-May-05 condition on the first visit (but presumably this constraint is already covered by the HST planning system).</i>																
	Diagnosics (F467M (01.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F547M (01.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (01.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F845M (01.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (01.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (01.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (01.007)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (01.008)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (01.008)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant. (F845M (01.009)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (01.010)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser																
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Solar System Targets																	

Proposal 16084 - Visit 01 - The Disruption of a Dark Vortex on Neptune

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 01 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	F547M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F547M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 01 (1)	6 Secs (12 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 01 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 01 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 01 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 01 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 01 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	8	FQ619N_quadA	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS-QUAD-SUB	FQ619N	CR-SPLIT=NO	POS TARG +20,-24	Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 8-8 in Sequence 1-10 Non-Int in Visit 01 (1)	120 Secs (240 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	9	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 01 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
10	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 01 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 01 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]	

Proposal 16084 - Visit 01 - The Disruption of a Dark Vortex on Neptune



Proposal 16084 - Visit 02 - The Disruption of a Dark Vortex on Neptune

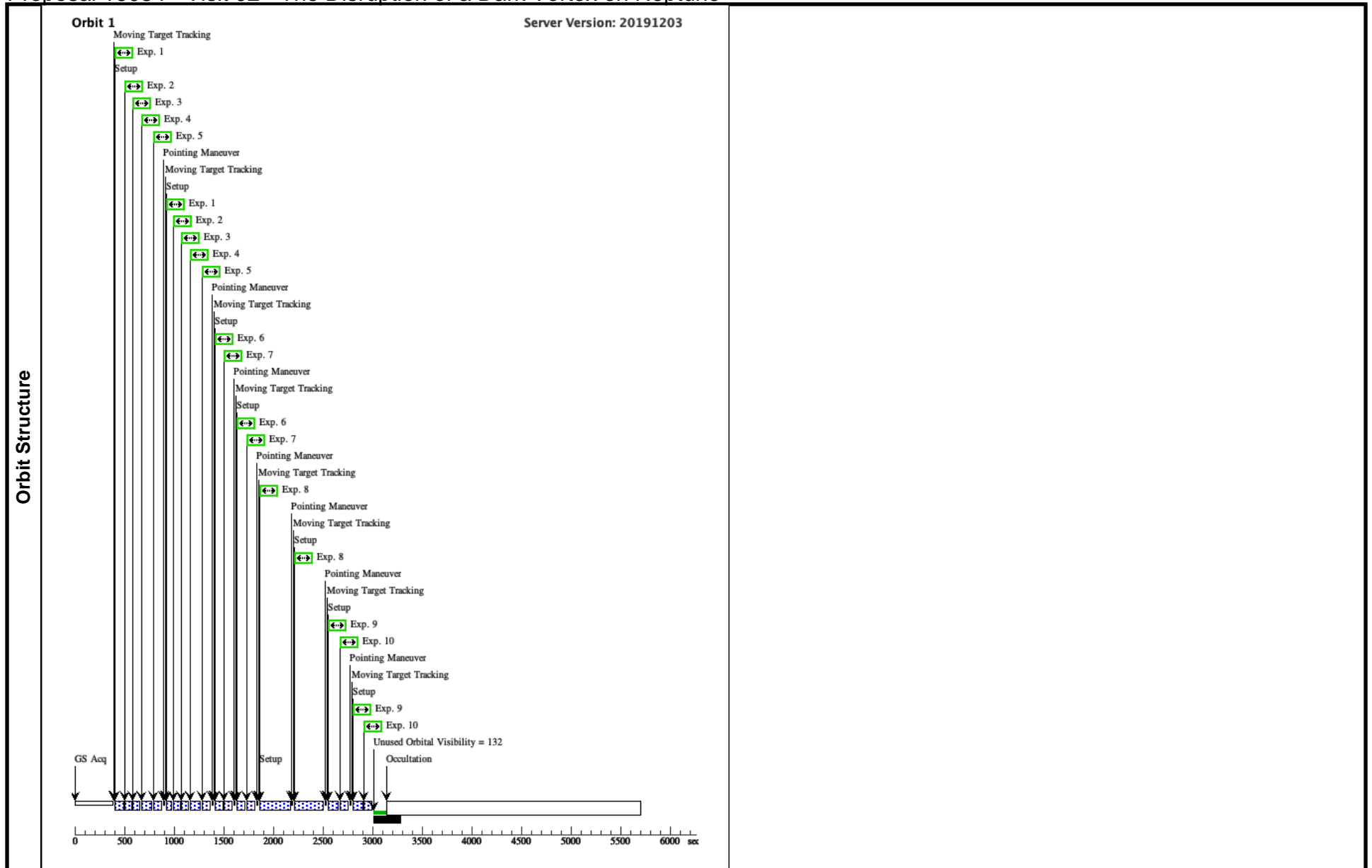
Thu Apr 16 16:00:52 GMT 2020

Visit	Proposal 16084, Visit 02, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 01 BY 1.9 Orbits TO 2.1 Orbits																			
Diagnostics	(F467M (02.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F547M (02.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (02.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F845M (02.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (02.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (02.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (02.007)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (02.008)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (02.008)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant. (F845M (02.009)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (02.010)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser																			
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(1)	NEPTUNE	STD=NEPTUNE				EARTH														

Proposal 16084 - Visit 02 - The Disruption of a Dark Vortex on Neptune

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 02 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	F547M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F547M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 02 (1)	6 Secs (12 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 02 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 02 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 02 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 02 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 02 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	8	FQ619N_quadA	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS-QUAD-SUB	FQ619N	CR-SPLIT=NO	POS TARG +20,-24	Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 8-8 in Sequence 1-10 Non-Int in Visit 02 (1)	120 Secs (240 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	9	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 02 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
10	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 02 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 02 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]	

Proposal 16084 - Visit O2 - The Disruption of a Dark Vortex on Neptune



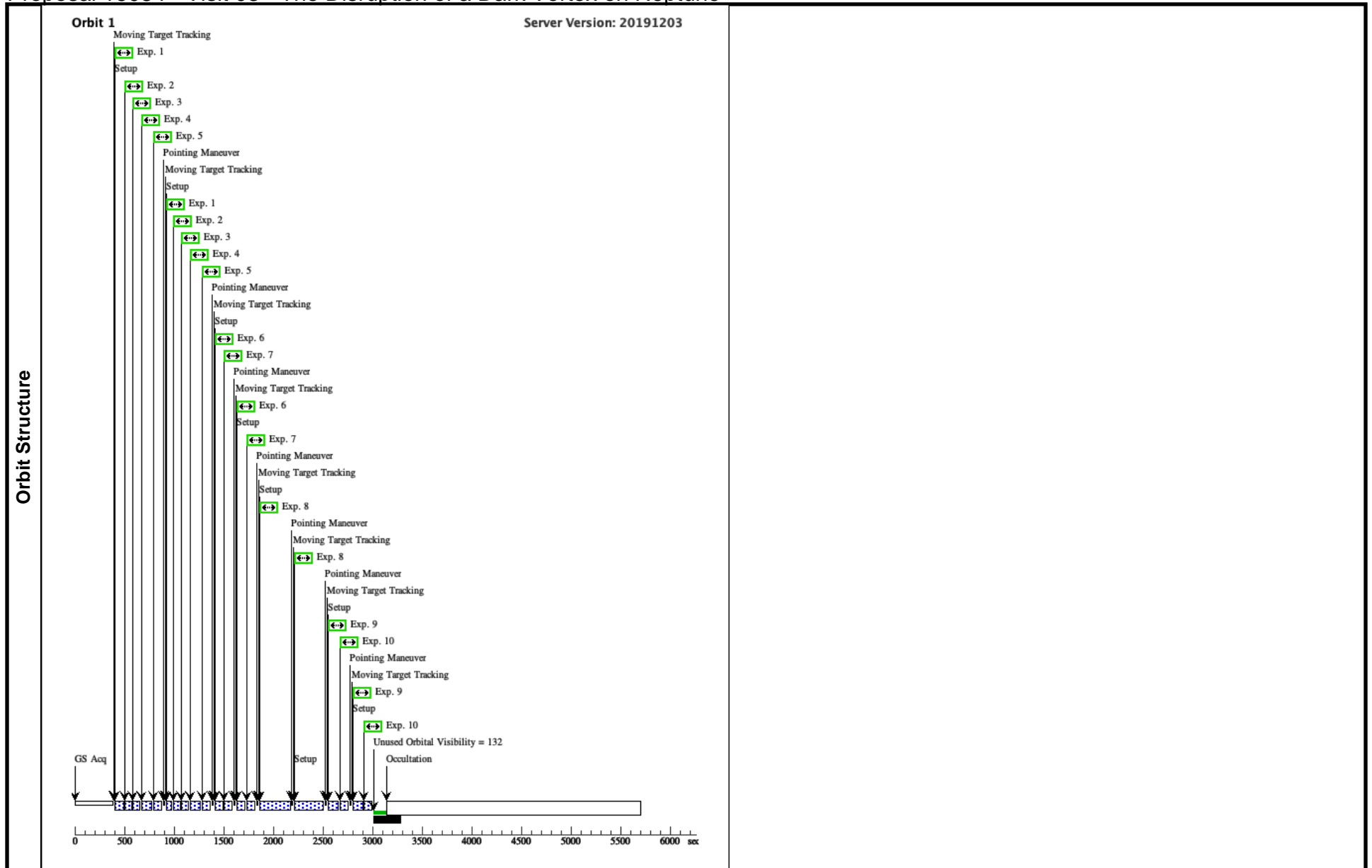
Proposal 16084 - Visit 03 - The Disruption of a Dark Vortex on Neptune

Thu Apr 16 16:00:52 GMT 2020

Visit	Proposal 16084, Visit 03, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 01 BY 3.9 Orbits TO 4.1 Orbits																			
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#	Name	Level 1	Level 2	Level 3	Window	Ephem Center														
(1)	NEPTUNE	STD=NEPTUNE				EARTH														

Proposal 16084 - Visit 03 - The Disruption of a Dark Vortex on Neptune

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 03 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	F547M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F547M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 03 (1)	6 Secs (12 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 03 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 03 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 03 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 03 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 03 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	8	FQ619N_quadA	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS-QUAD-SUB	FQ619N	CR-SPLIT=NO	POS TARG +20,-24	Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 8-8 in Sequence 1-10 Non-Int in Visit 03 (1)	120 Secs (240 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	9	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 03 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
10	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 03 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 03 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 16084 - Visit 04 - The Disruption of a Dark Vortex on Neptune

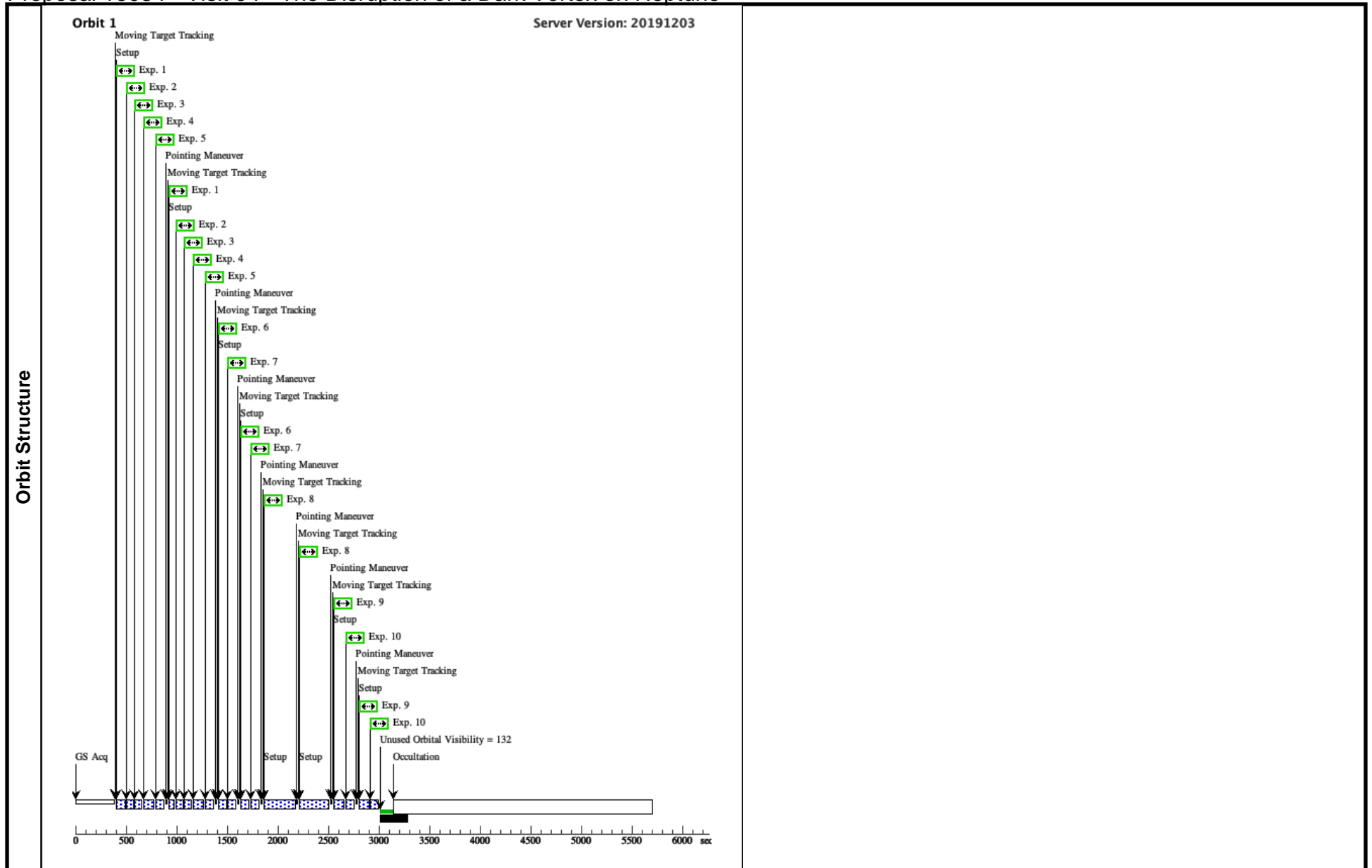
Thu Apr 16 16:00:52 GMT 2020

Visit	Proposal 16084, Visit 04, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 01 BY 5.9 Orbits TO 6.1 Orbits																			
Diagnostics	(F467M (04.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F547M (04.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (04.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F845M (04.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (04.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (04.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (04.007)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (04.008)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (04.008)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant. (F845M (04.009)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (04.010)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser																			
Patterns	<table border="1"> <thead> <tr> <th>#</th> <th>Primary Pattern</th> <th>Secondary Pattern</th> <th>Exposures</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td> Pattern Type=WFC3-UVIS-DITHER- LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing= </td> <td> Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false </td> <td>(1-5), (6-7), (8), (9-10)</td> </tr> </tbody> </table>	#	Primary Pattern	Secondary Pattern	Exposures	(1)	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	(1-5), (6-7), (8), (9-10)											
#	Primary Pattern	Secondary Pattern	Exposures																	
(1)	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	(1-5), (6-7), (8), (9-10)																	
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#	Name	Level 1	Level 2	Level 3	Window	Ephem Center														
(1)	NEPTUNE	STD=NEPTUNE				EARTH														

Proposal 16084 - Visit 04 - The Disruption of a Dark Vortex on Neptune

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 04 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	F547M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F547M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 04 (1)	6 Secs (12 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 04 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 04 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 04 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 04 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 04 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	8	FQ619N_quadA	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS-QUAD-SUB	FQ619N	CR-SPLIT=NO	POS TARG +20,-24	Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 8-8 in Sequence 1-10 Non-Int in Visit 04 (1)	120 Secs (240 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	9	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 04 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
10	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 04 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 04 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]	

Proposal 16084 - Visit 04 - The Disruption of a Dark Vortex on Neptune



Proposal 16084 - Visit 05 - The Disruption of a Dark Vortex on Neptune

Thu Apr 16 16:00:52 GMT 2020

Visit	Proposal 16084, Visit 05, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 01 BY 12 H TO 15 H																
	Diagnosics (F467M (05.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F547M (05.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (05.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F845M (05.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (05.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F763M (05.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (05.007)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (05.008)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (FQ619N_quadA (05.008)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignettted part of the field of view or moving it to another quadrant. (F845M (05.009)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (F467M (05.010)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser																
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(1)	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	(1-5), (6-7), (8), (9-10)														
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#	Name	Level 1	Level 2	Level 3	Window	Ephem Center											
(1)	NEPTUNE	STD=NEPTUNE				EARTH											
Solar System Targets																	

Proposal 16084 - Visit 05 - The Disruption of a Dark Vortex on Neptune

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 05 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2	F547M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F547M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 05 (1)	6 Secs (12 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 05 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	4	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 05 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	5	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 1-5 in Sequence 1-10 Non-Int in Visit 05 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	6	F763M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F763M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 05 (1)	20 Secs (40 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	7	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 6-7 in Sequence 1-10 Non-Int in Visit 05 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	8	FQ619N_quadA	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS-QUAD-SUB	FQ619N	CR-SPLIT=NO	POS TARG +20,-24	Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 8-8 in Sequence 1-10 Non-Int in Visit 05 (1)	120 Secs (240 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	9	F845M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F845M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 05 (1)	40 Secs (80 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]
10	F467M	(1) NEPTUNE	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F467M	CR-SPLIT=NO		Sequence 1-10 Non-Int in Visit 05 Pattern 1, Exps 9-10 in Sequence 1-10 Non-Int in Visit 05 (1)	15 Secs (30 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1]	

