15421 - The Nucleus of comet 41P/Tuttle-Giacobini-Kresak

Cycle: 25, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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Dr. Matthew M Knight (CoI)	University of Maryland	mmk8a@astro.umd.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:53.0	yes
02	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:54.0	yes
03	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:55.0	yes
04	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:56.0	yes
05	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:57.0	yes
06	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:58.0	yes
07	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:16:59.0	yes
08	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:17:00.0	yes
09	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:17:00.0	yes
10	(1) 41P	WFC3/UVIS	1	04-Dec-2017 11:17:01.0	yes

10 Total Orbits Used

ABSTRACT

Comet 41P/Tuttle-Giacobini-Kresak is undergoing an unprecedented spindown of its nucleus, with its rotation period more than doubling from 20 to 42+ hours in a two month period. No other comet has been observed to exhibit this magnitude of change in its dynamic state, suggesting that 41P has a distinct alignment of its activity that generates highly efficient torques on the nucleus. Its rapid evolution presents us with a unique opportunity for testing models of cometary dynamics. Unfortunately, little information currently exists about the nucleus itself, which limits our ability to quantify the forces involved. We are requesting 10 HST orbits, spanning a 7-day window, to observe the comet's lightcurve. We will use this lightcurve to characterize the nucleus' size and shape and determine its current rotation period. We will use the F350LP filter to maximize the S/N of our measurements, and we have developed an observation sampling strategy that optimizes the 10 orbits to provide an good coverage of lightcurves with any period between 2 and 7 days. Results derived from these observations will provide the knowledge needed for detailed analyses of the comet's torques and how they respond to changing production rates and illumination conditions.

OBSERVING DESCRIPTION

We are attempting to define a comet nucleus lightcurve, so ideally we would like to spread our 10 orbits out at roughly equal intervals over the observing window.

For the following we assume the window starts 11-Dec-2017:00:00:00 and ends 14-Dec-2017:11:39:00.
(The start date is assumed to be the start of the upcoming SMS, and the end date, given by visit planner, is presumably defined by the time at which the comet enters the solar exclusion zone. If these are not the correct limits, then our window size and average interval may change a little.)

The window is thus 3.48 days (83.5 hrs) long, and with 9 intervals between 10 visits, the average interval is ~9 hrs.

Thus we would like to sample the lightcurve on average every 9 hours. In the timing requirements for the visits, we specify intervals of 6 to 12 hrs, and are willing to occasionally relax those limits even further to facilitate scheduling, as long as we obtain suitable coverage of the observing window.

Each visit is identical and will consist of 7 images obtained with the WFC3/UVIS instrument in the 1kx1k subframe mode.

The 7-image sequence repeated at each visit:

F350LP 160 sec
F475W 400 sec
F625W 340 sec
(dither)
F350LP 160 sec
F475W 400 sec
F625W 340 sec
(dither)
F350LP 160 sec

Visit

Proposal 15421, 41P lightcurve point (01), scheduled Mon Dec 04 16:17:02 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 11-DEC-2017:00:00:00

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

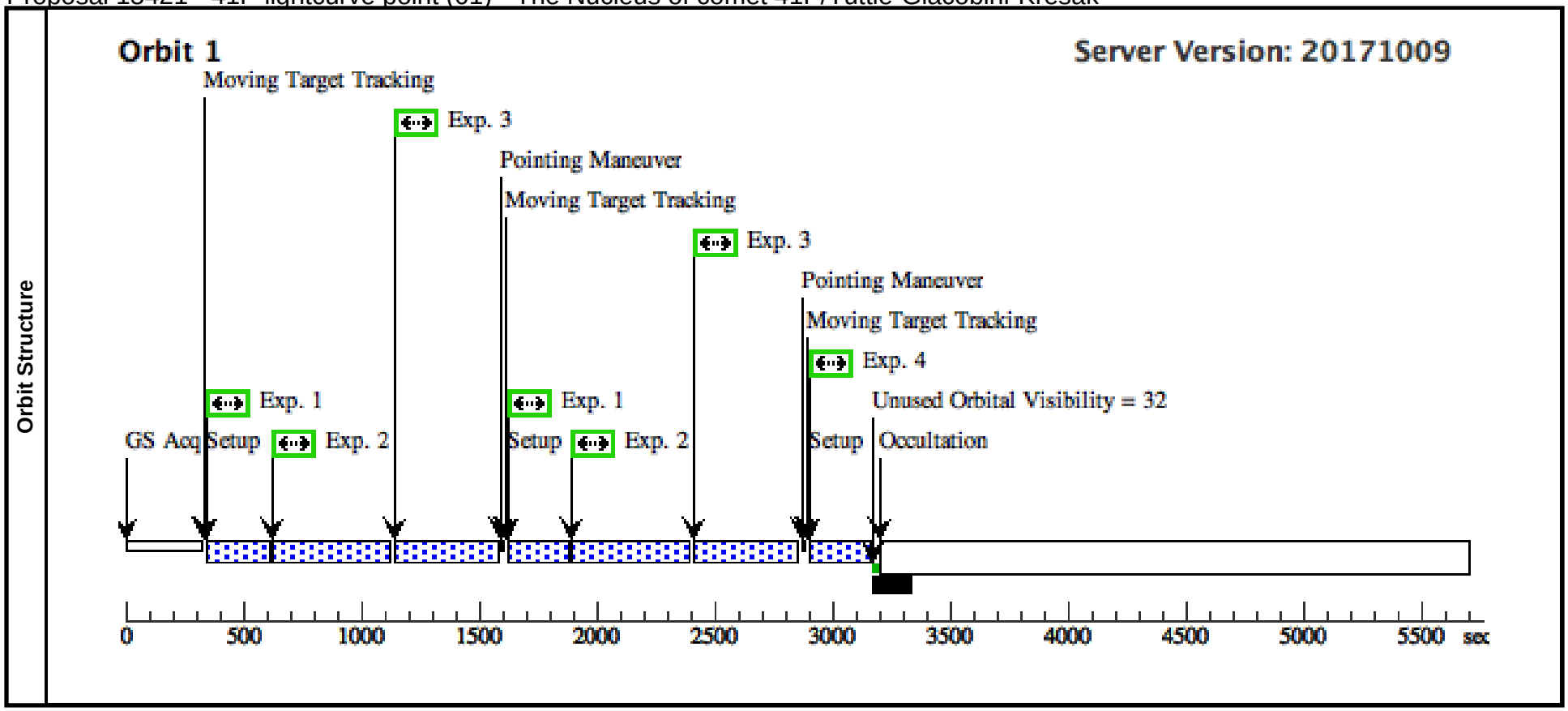
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (01) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (01) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (01) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 4
Unused Orbital Visibility = 32
Exp. 1
Exp. 1
GS Acq
Setup
Exp. 2
Setup
Exp. 2
Setup
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15421, 41P lightcurve point (02), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 01 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

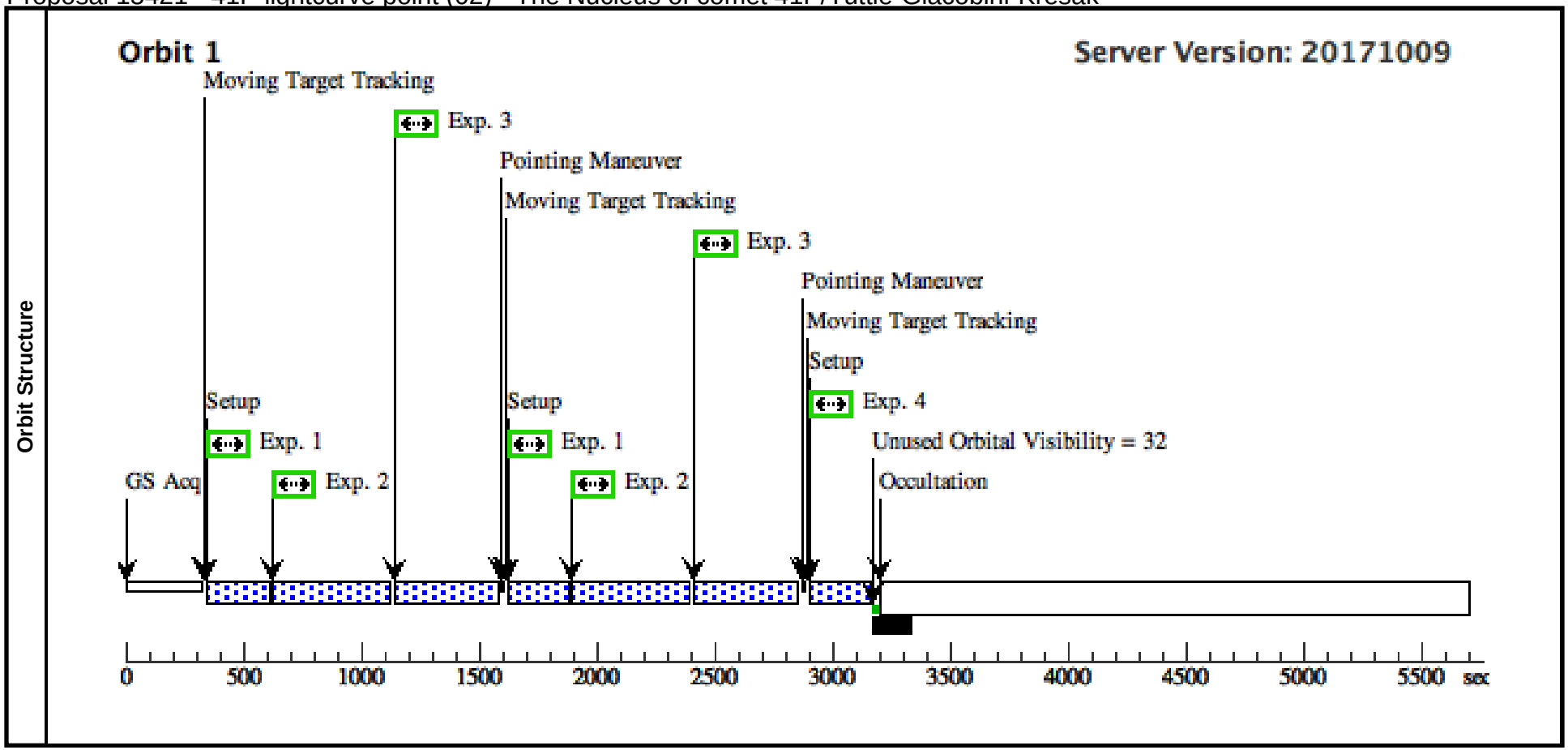
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (02) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (02) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (02) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Setup
Exp. 4
Unused Orbital Visibility = 32
Occultation
Setup
Exp. 1
Exp. 2
Setup
Exp. 1
Exp. 2
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
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5500
sec

Visit

Proposal 15421, 41P lightcurve point (03), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 02 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

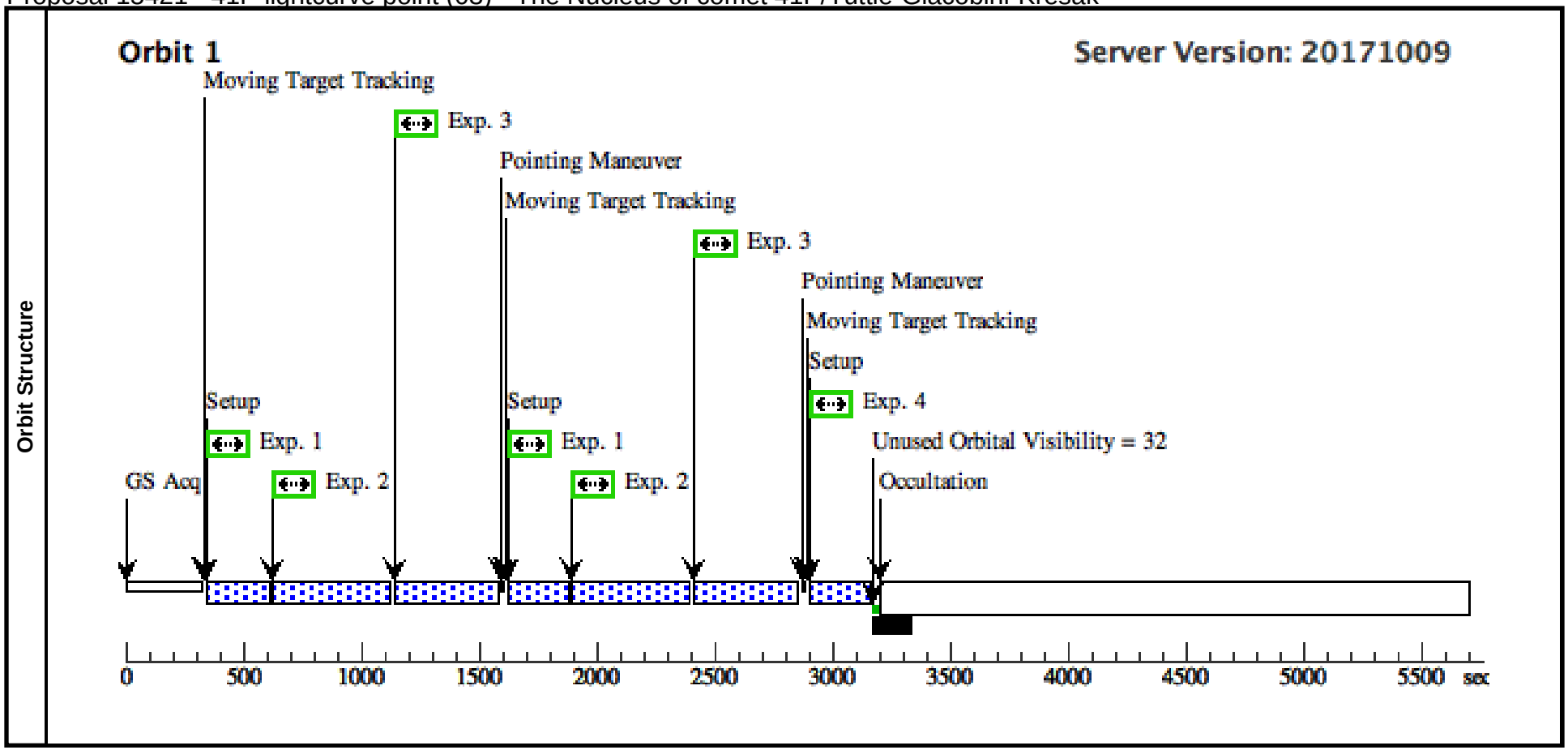
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (03) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (03) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (03) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Setup
Exp. 4
Unused Orbital Visibility = 32
Occultation
Setup
Exp. 1
Exp. 2
Setup
Exp. 1
Exp. 2
GS Acq
0
500
1000
1500
2000
2500
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3500
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4500
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5500
sec

Visit

Proposal 15421, 41P lightcurve point (04), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 03 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

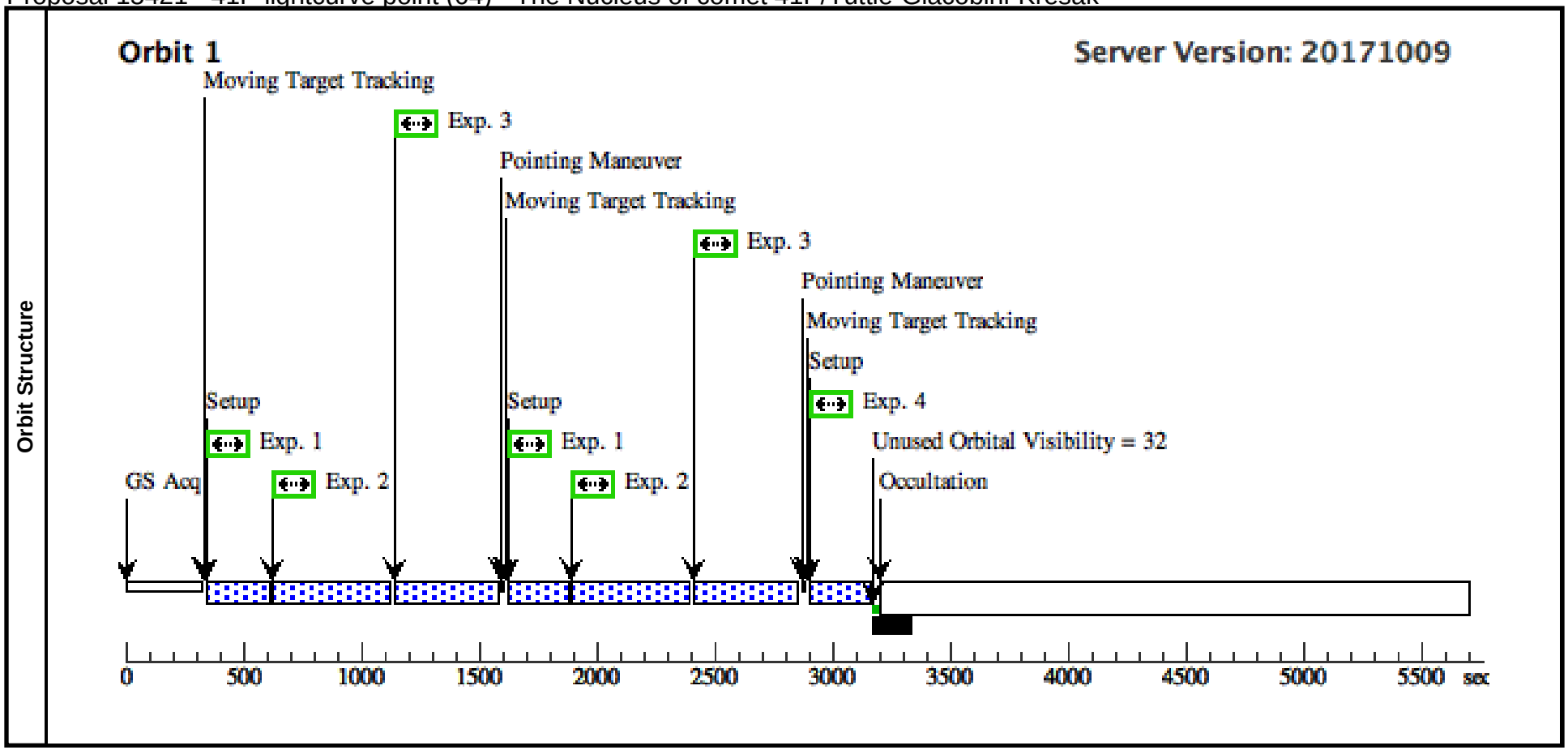
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (04) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (04) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (04) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Setup
Exp. 4
Unused Orbital Visibility = 32
Occultation
Setup
Exp. 1
Exp. 2
Setup
Exp. 1
Exp. 2
GS Acq
0
500
1000
1500
2000
2500
3000
3500
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5000
5500
sec

Visit

Proposal 15421, 41P lightcurve point (05), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 04 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

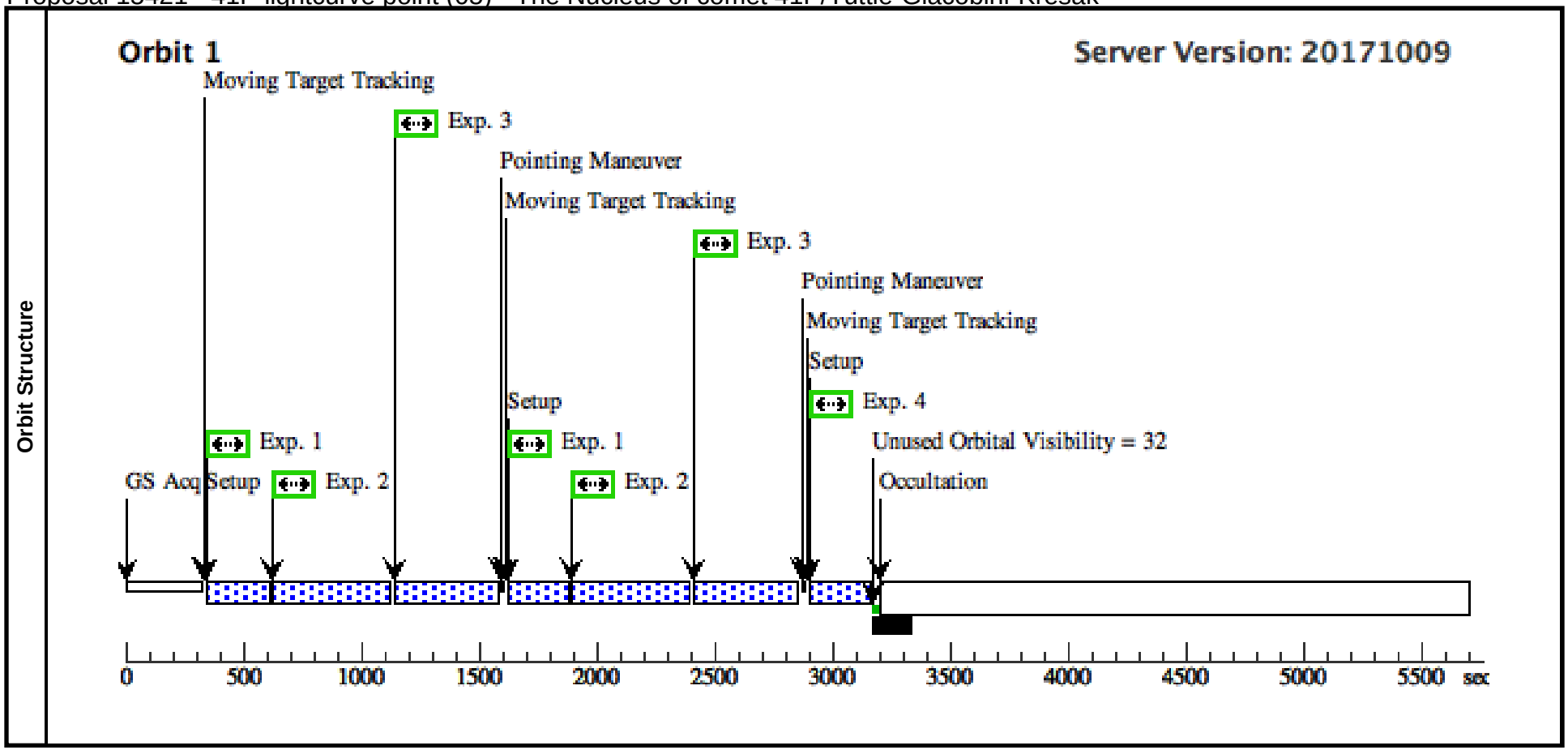
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (05) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (05) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (05) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Setup
Exp. 4
Setup
Exp. 1
Exp. 1
Unused Orbital Visibility = 32
GS Acq
Setup
Exp. 2
Exp. 2
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15421, 41P lightcurve point (06), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 05 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

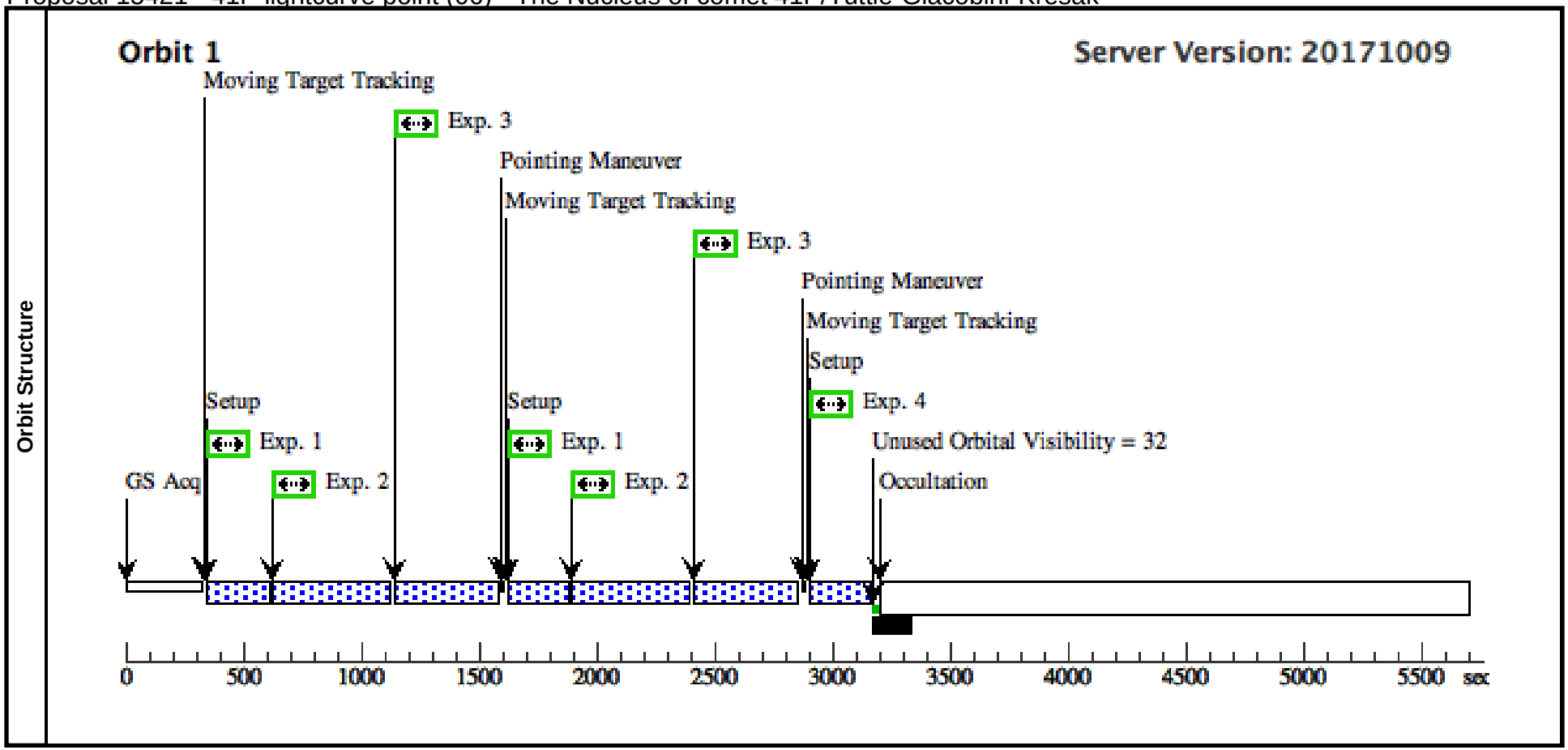
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (06) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (06) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (06) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Setup
Exp. 4
Unused Orbital Visibility = 32
Occultation
Setup
Exp. 1
Exp. 2
Setup
Exp. 1
Exp. 2
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15421, 41P lightcurve point (07), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 06 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

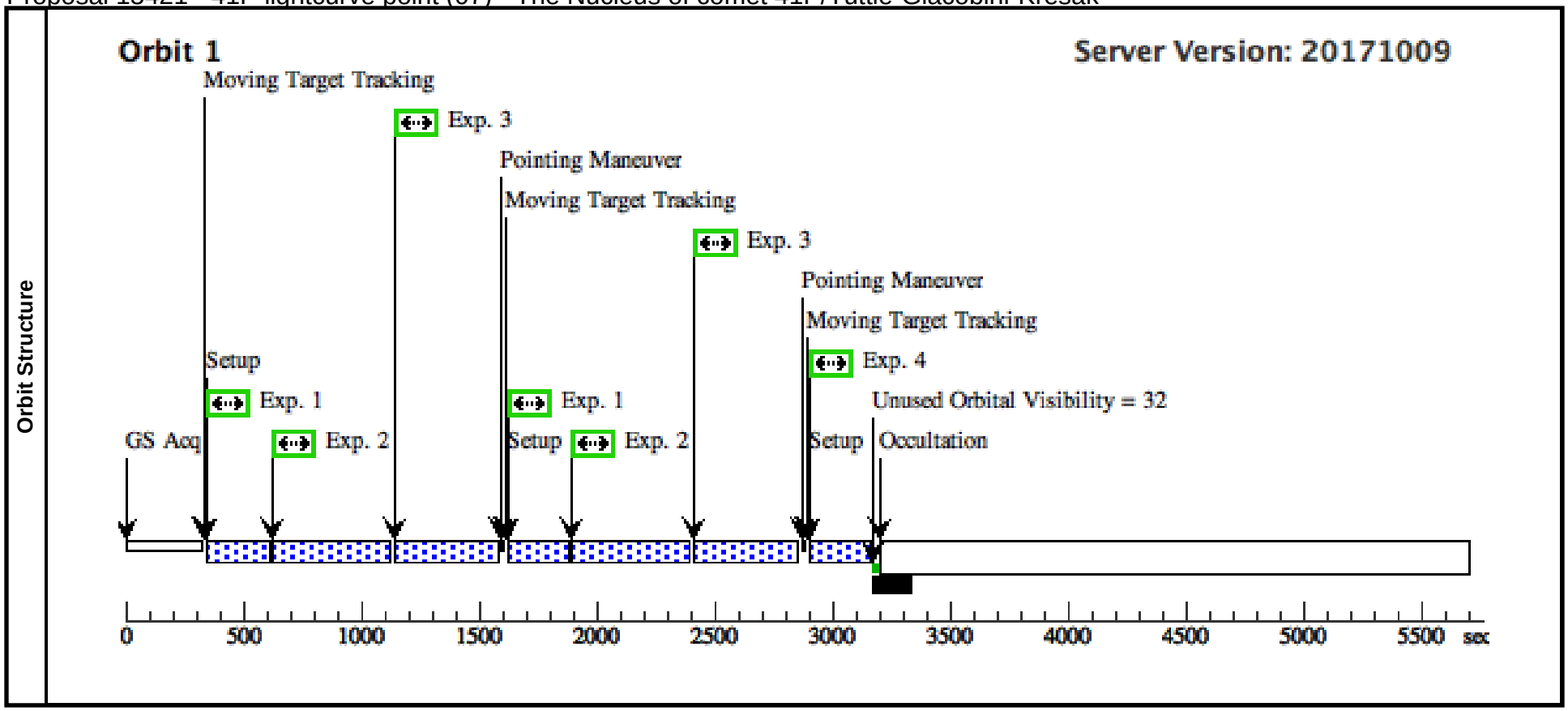
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (07) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (07) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (07) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 4
Unused Orbital Visibility = 32
Setup
Exp. 1
GS Acq
Exp. 2
Exp. 1
Setup
Exp. 2
Setup
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15421, 41P lightcurve point (08), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 07 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

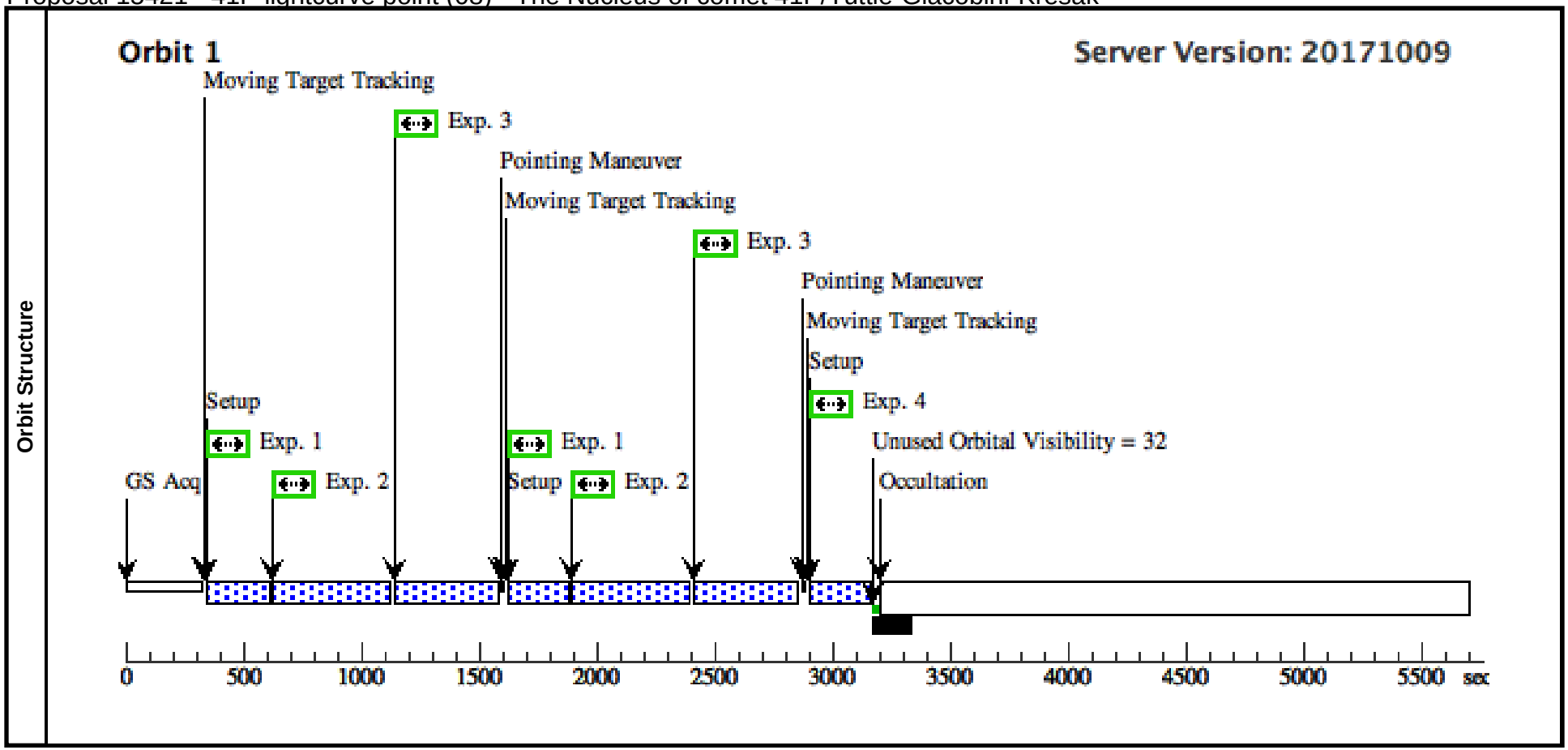
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (08) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	 ***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (08) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	 ***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (08) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	 ***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	 ***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Setup
Exp. 4
Unused Orbital Visibility = 32
Occultation
Setup
Exp. 1
Exp. 1
GS Acq
Exp. 2
Setup
Exp. 2
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15421, 41P lightcurve point (09), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 11-DEC-2017:00:00:00; AFTER 08 BY 0.25 D TO 0.5 D

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

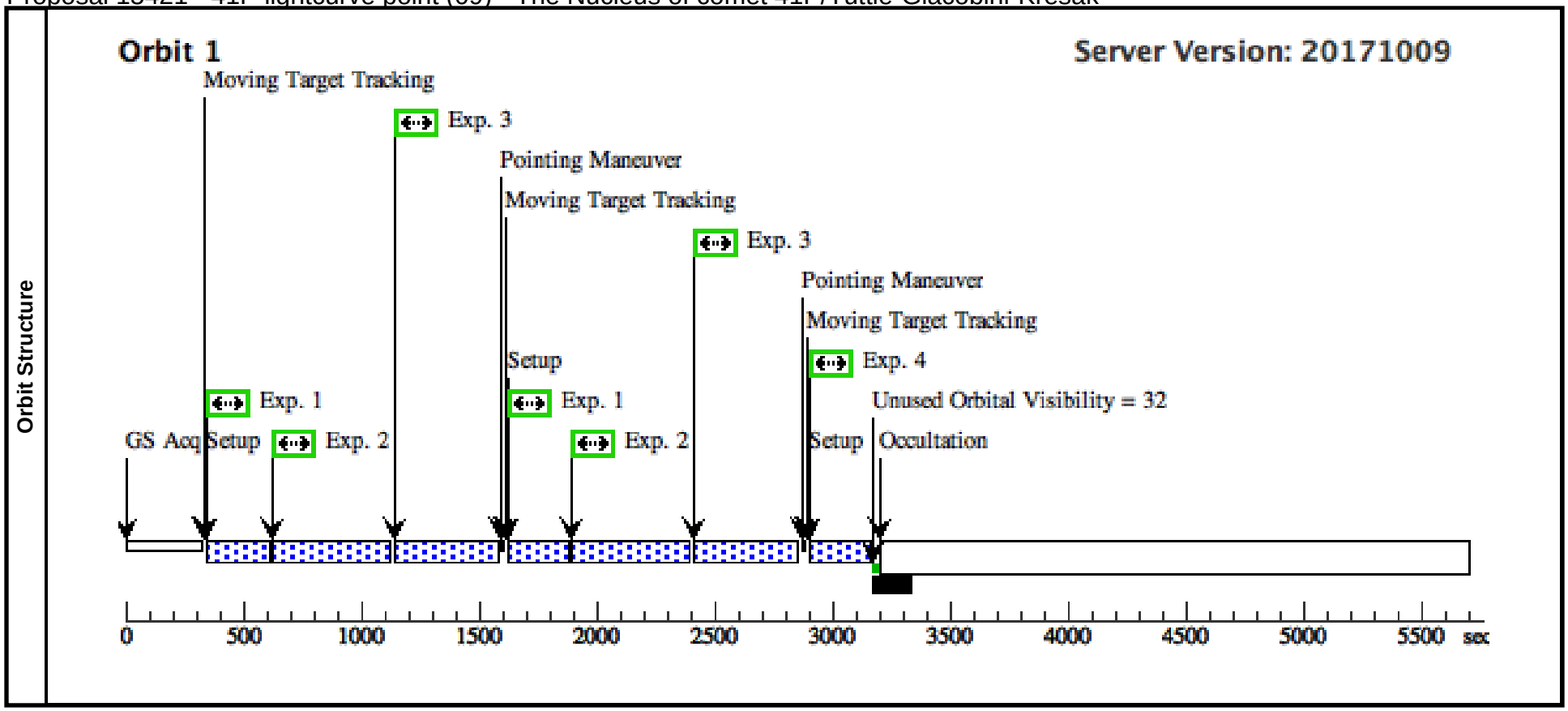
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (09) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (09) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (09) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 4
Unused Orbital Visibility = 32
Setup
Exp. 1
Exp. 1
GS Acq
Setup
Exp. 2
Exp. 2
Setup
Occultation
0
500
1000
1500
2000
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4500
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5500
sec

Visit

Proposal 15421, 41P lightcurve point (10), scheduled Mon Dec 04 16:17:03 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 09 BY 0.25 D TO 0.5 D; BEFORE 14-DEC-2017:11:39:00

Comments: Timing Requirements:
To clarify, we are trying to define a lightcurve, so we would like to space our 10 orbits at roughly equal intervals through the observing window, if possible. Assuming the window start time is 11-Dec-2017:00:00:00 and the end time is 14-Dec-2017:11:39:00 (according to the visit planner - presumably defined by the time at which the comet enters the solar exclusion zone) then the intervals would be an average of ~9 hrs. In the requirements below, we specify intervals of 6 to 12 hrs (and are willing to relax that even further to facilitate scheduling) but would like to span the majority of the observing window.

Patterns

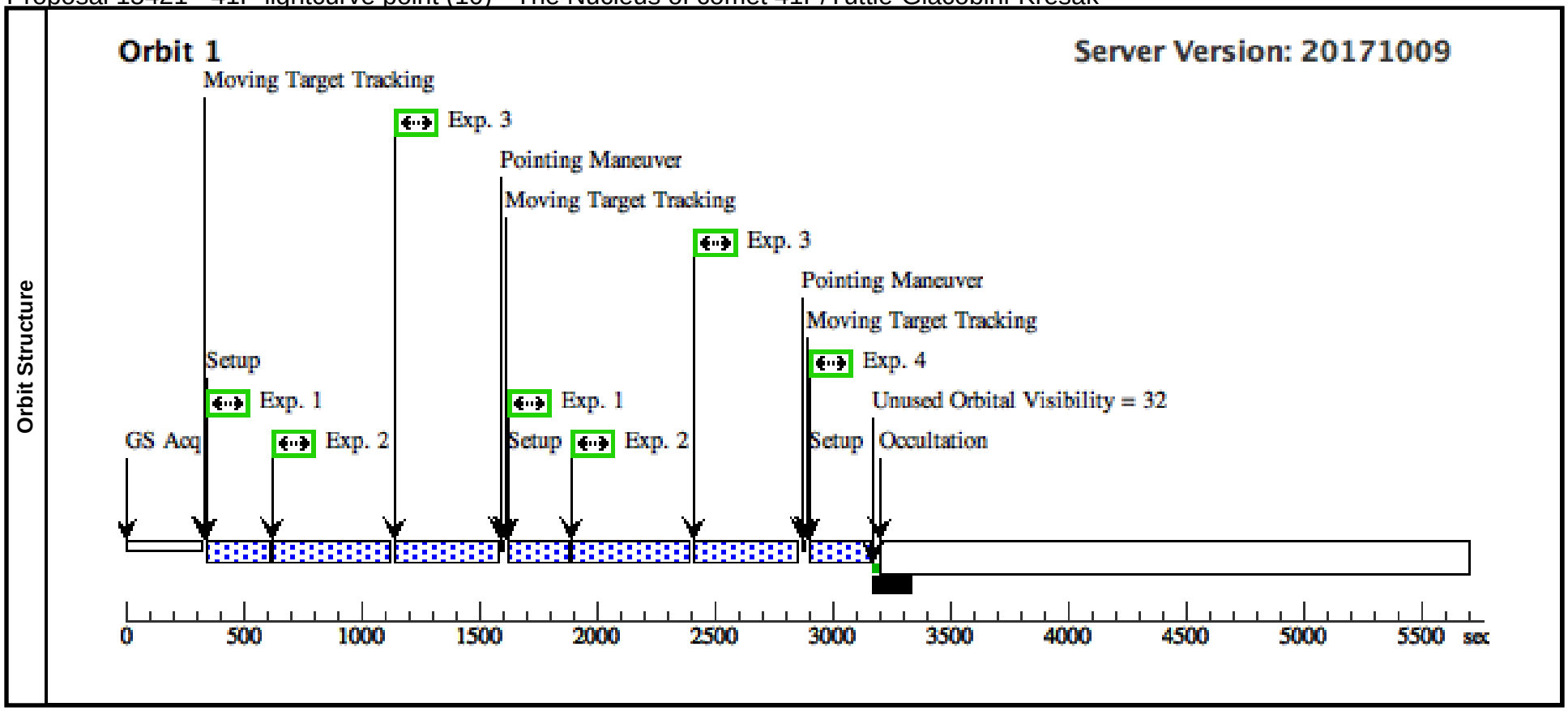
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-3)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	41P	TYPE=COMET,Q=1.045042734323105,E=0.6612507057941893,I=9.229131575306448,O=141.0662859883997,W=62.15858593106646,T=12-APR-2017:18:03:14,TTimeScale=TDB,EQUINOX=J2000,EPOCH=01-APR-2017:00:00:00,EpochTimeScale=TDB,A1=1.745203733444E-8,A2=4.275330603123E-9,A3=1.473430991173E-9				EARTH

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP			Pattern 2, Exps 1-3 in 41P lightcurve point (10) (2)	160 Secs (320 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	Blue color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	FLASH=4		Pattern 2, Exps 1-3 in 41P lightcurve point (10) (2)	400 Secs (800 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	Red color	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=2		Pattern 2, Exps 1-3 in 41P lightcurve point (10) (2)	340 Secs (680 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	Broadband filter	(1) 41P	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F350LP				160 Secs (160 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20171009
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 3
Pointing Maneuver
Moving Target Tracking
Exp. 4
Unused Orbital Visibility = 32
Setup
Exp. 1
GS Acq
Exp. 2
Exp. 1
Setup
Exp. 2
Setup
Occultation
0
500
1000
1500
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sec