



12701 - WFC3 PSF Wings

Cycle: 19, Proposal Category: CAL/WFC3

(Availability Mode: RESTRICTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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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) GD153	WFC3/UVIS	2	20-Sep-2011 21:26:04.0	yes
02	(1) GD153	WFC3/IR WFC3/UVIS	2	20-Sep-2011 21:26:21.0	yes
03	(1) GD153	WFC3/IR	1	20-Sep-2011 21:26:30.0	yes
04	(1) GD153	WFC3/IR	1	20-Sep-2011 21:26:32.0	yes

6 Total Orbits Used

ABSTRACT

The WFC3 PSF wings will be evaluated at 5 field points (near the field center and corners) in one filter per detector (UVIS:F275W, IR:F098M) to check for image stability. At each of the 5 points on the UVIS detector, subarray images of a moderately bright isolated star will be obtained with a series of increasing exposure times and combined with a deep saturated full frame image of the star. At each of the 5 points on the IR detector, a deep full frame exposure will be

made with non-destructive reads designed to produce an image with an unsaturated core and good SNR out into the wings. In each case, a very high SNR PSF with dynamic range sufficient to evaluate the wing intensity to >5 arcsec radius will be produced and compared to the PSFs produced in previous executions of the WFC3 PSF wings programs (11438, 11439, 11919, 11921). Encircled energy of the PSF will be measured as a function of radius with an accuracy of 1% for radii > 0.2 arcsec (UVIS) and > 0.35 arcsec (IR). The data will be analyzed using the code and techniques described in ISR WFC3 2008-40 and 2008-41 (Hartig).

OBSERVING DESCRIPTION

UVIS:

An isolated star will be observed at 5 points on the detector, near the center and the corners, through filter F275W, as in SMOV proposal 11438 and cycle 17 proposal 11919. For the near-center pointing, the aperture UVIS will be used to place the target 10 arcsec from the interchip gap. The corner pointings will be specified with POS TARGs used in combination with the aperture UVIS-CENTER. At each pointing, there will be a series of subarray exposures with increasing exposure times followed by a long full-frame exposure in one filter. Single exposures are all 5 sec or longer, so the observed PSF (point spread function) is not expected to be greatly affected by the short-lived vibrations induced by shutter movement. Each series of subarray exposures is performed in an uninterrupted sequence to allow a straight-forward combination of the exposures into a high S/N PSF with minimal smearing of the core.

IR:

An isolated star will be observed at 5 points on the detector, near the center and the corners, through filter F098M, as in SMOV proposal 11439 and cycle 17 proposal 11921. The STEP timing sequence has been chosen for its dynamic range. For the central location, an offset is used to move the target away from the

point where the four quadrants meet at the center of the detector. Each PSF is read out by a single amplifier to a radius of at least 5 arcsec.

ADDITIONAL COMMENTS

SCHEDULING: The program should be performed as early as possible in cycle 19. We have chosen not to use a **BETWEEN** statement to allow for greater flexibility in scheduling.

PERSISTENCE WARNING: To avoid affecting subsequent observations with persistence, no WFC3/IR exposures should be scheduled in the 2 orbits following the completion of the last exposure in Visits 02, 03, and 04.

Proposal 12701 - Visit 01 - WFC3 PSF Wings

Visit	Proposal 12701, Visit 01, implementation Wed Sep 21 01:26:36 GMT 2011 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: GROUP 01.02 WITHIN 21D					
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	GD153	RA: 12 57 2.3700 (194.2598750d) Dec: +22 01 56.00 (22.03222d) Equinox: J2000	Proper Motion RA: -0.0015 sec of time/yr Proper Motion Dec: -0.1893 arcsec/yr Epoch of Position: 1982.38	V=13.346+/-0.005	Reference Frame: ICRS

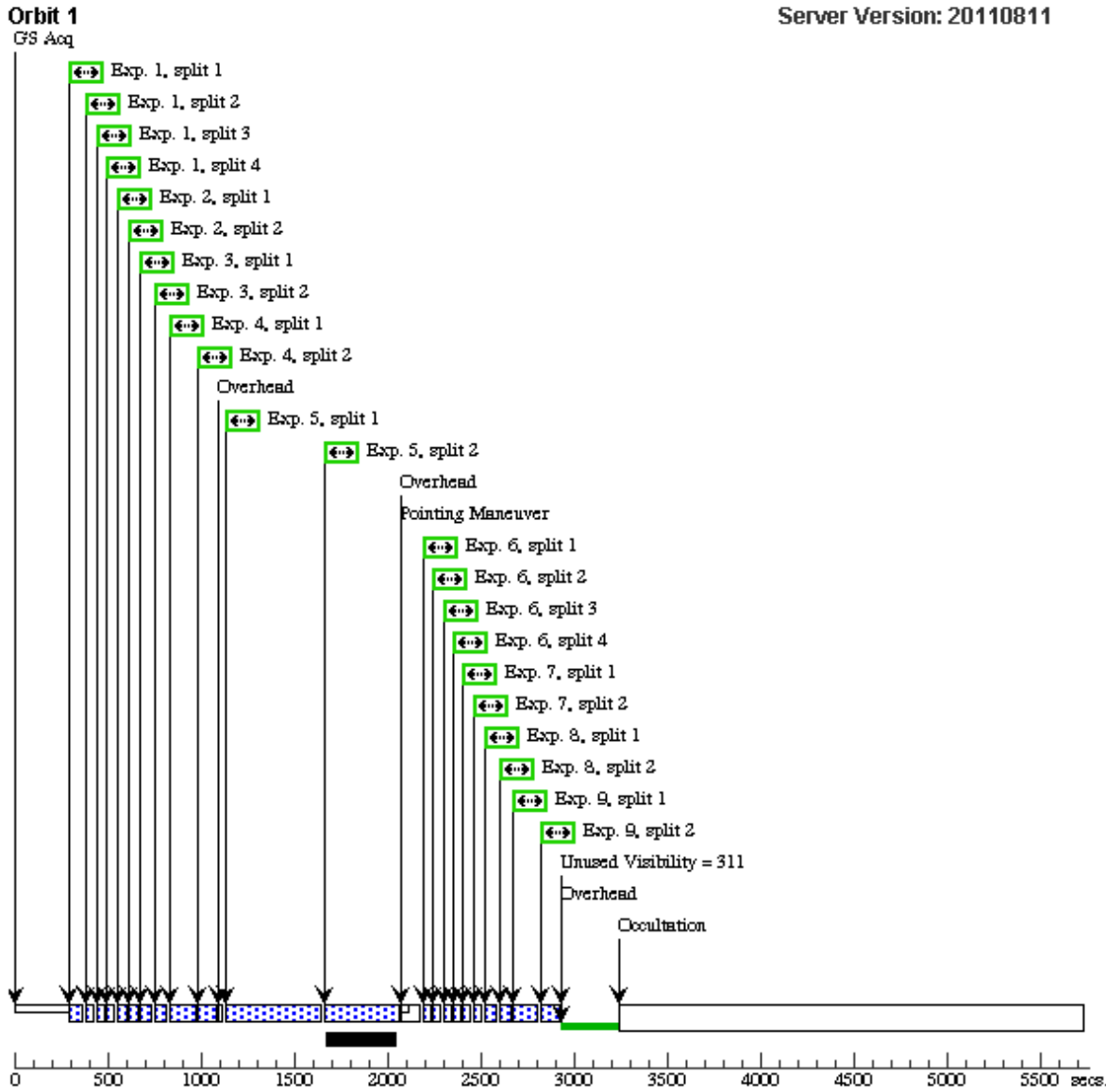
Proposal 12701 - Visit 01 - WFC3 PSF Wings

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	(1) GD153	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	CR-SPLIT=4; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 0.5,0.5; GS ACQ SCENARI O BASE1B3	Sequence 1-4 Non-Int in Visit 01	20.0 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	2	(1) GD153	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 0.5,0.5	Sequence 1-4 Non-Int in Visit 01	20.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3	(1) GD153	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 0.5,0.5	Sequence 1-4 Non-Int in Visit 01	50.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	4	(1) GD153	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 0.5,0.5	Sequence 1-4 Non-Int in Visit 01	200.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	5	(1) GD153	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	CR-SPLIT=2	POS TARG 0.5,0.5		800.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	6	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=4; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.7,54. 9	Sequence 6-9 Non-Int in Visit 01	20.0 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	7	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.7,54. 9	Sequence 6-9 Non-Int in Visit 01	20.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]

Proposal 12701 - Visit 01 - WFC3 PSF Wings

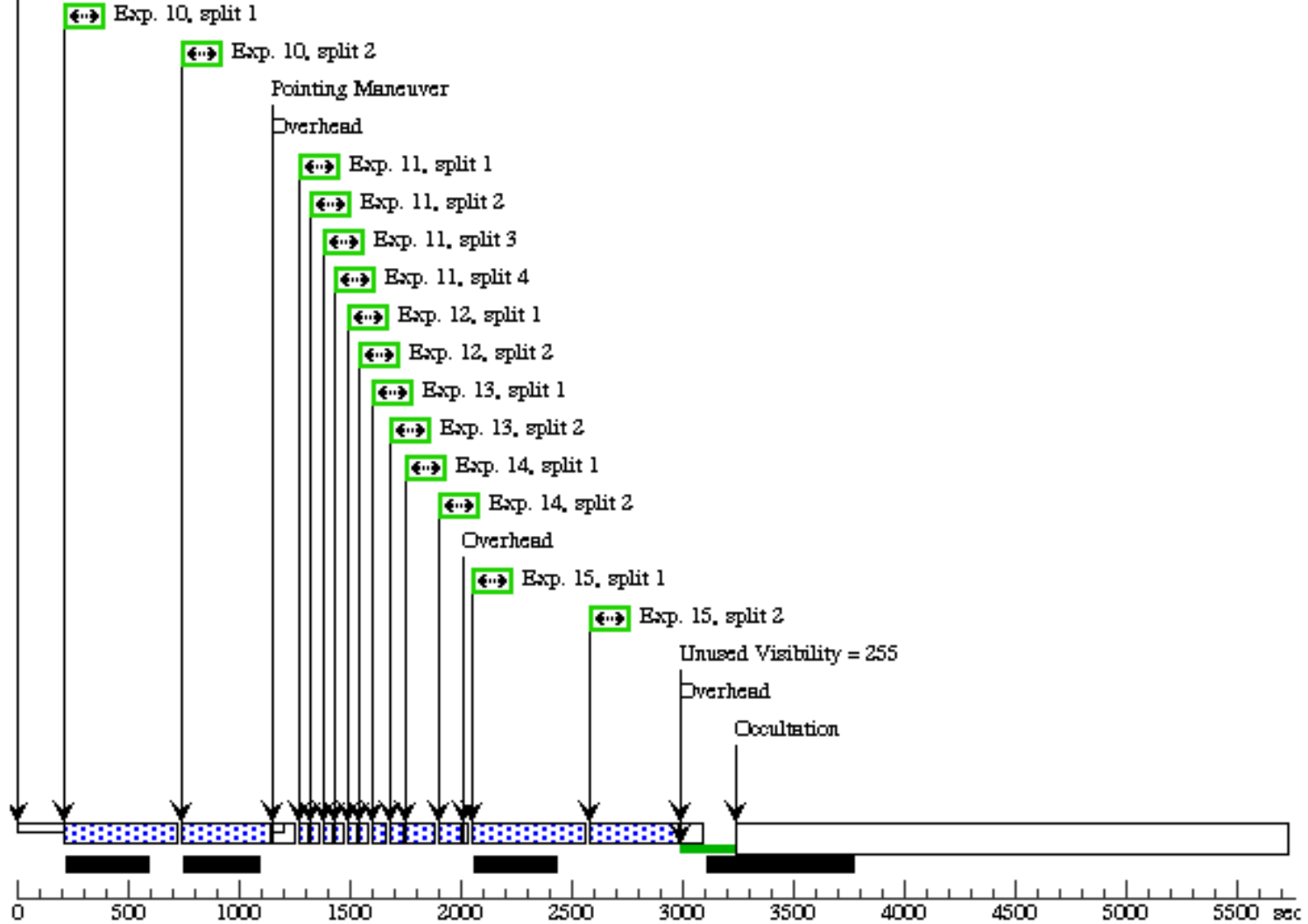
8	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.7,54. 9	Sequence 6-9 Non-Int in Visit 01	50.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
9	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.7,54. 9	Sequence 6-9 Non-Int in Visit 01	200.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
10	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2	POS TARG 50.7,54. 9		800.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
11	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=4; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.2,-47 .5	Sequence 11-14 Non-Int in Visit 01	20.0 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[2]
12	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.2,-47 .5	Sequence 11-14 Non-Int in Visit 01	20.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
13	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.2,-47 .5	Sequence 11-14 Non-Int in Visit 01	50.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
14	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG 50.2,-47 .5	Sequence 11-14 Non-Int in Visit 01	200.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
15	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2	POS TARG 50.2,-47 .5		800.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]

Orbit Structure



Orbit 2

GS Req



Proposal 12701 - Visit 02 - WFC3 PSF Wings

Wed Sep 21 01:26:40 GMT 2011

Visit	<p>Proposal 12701, Visit 02, implementation</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/IR, WFC3/UVIS</p> <p>Special Requirements: GROUP 02,03,04 WITHIN 21D</p> <p><i>Comments: To avoid affecting subsequent observations with persistence, no WFC3/IR exposures should be scheduled in the 2 orbits following the completion of the last exposure in Visit 02.</i></p>					
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	GD153	RA: 12 57 2.3700 (194.2598750d) Dec: +22 01 56.00 (22.03222d) Equinox: J2000	Proper Motion RA: -0.0015 sec of time/yr Proper Motion Dec: -0.1893 arcsec/yr Epoch of Position: 1982.38	V=13.346+/-0.005	Reference Frame: ICRS

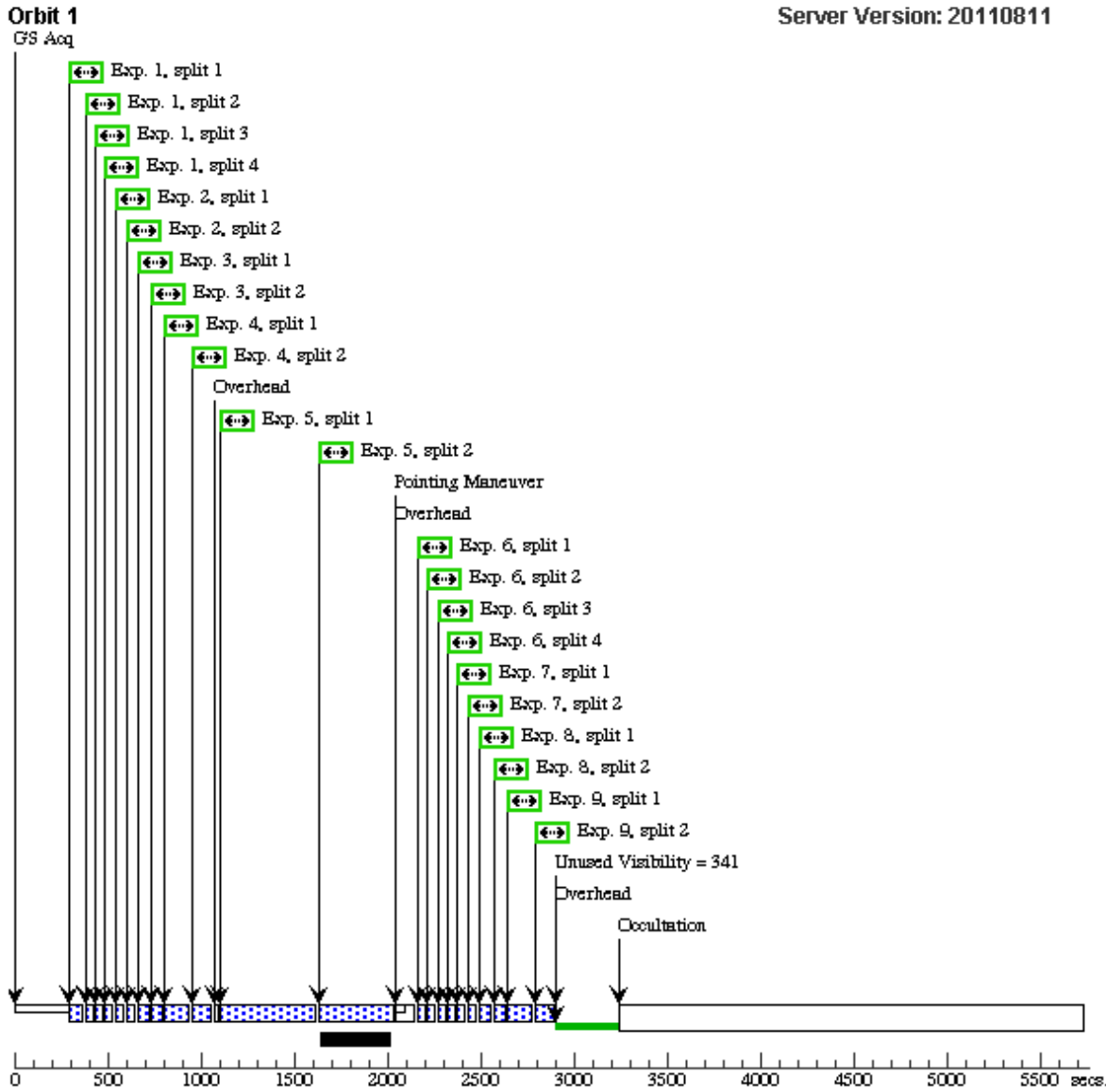
Proposal 12701 - Visit 02 - WFC3 PSF Wings

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=4; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.7,-5 4.9; GS ACQ SCENARI O BASE1B3	Sequence 1-4 Non-Int in Visit 02	20.0 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	2	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.7,-5 4.9	Sequence 1-4 Non-Int in Visit 02	20.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.7,-5 4.9	Sequence 1-4 Non-Int in Visit 02	50.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	4	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.7,-5 4.9	Sequence 1-4 Non-Int in Visit 02	200.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	5	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2	POS TARG -50.7,-5 4.9		800.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	6	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=4; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.2,47 .5	Sequence 6-9 Non-Int in Visit 02	20.0 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	7	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.2,47 .5	Sequence 6-9 Non-Int in Visit 02	20.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]

Proposal 12701 - Visit 02 - WFC3 PSF Wings

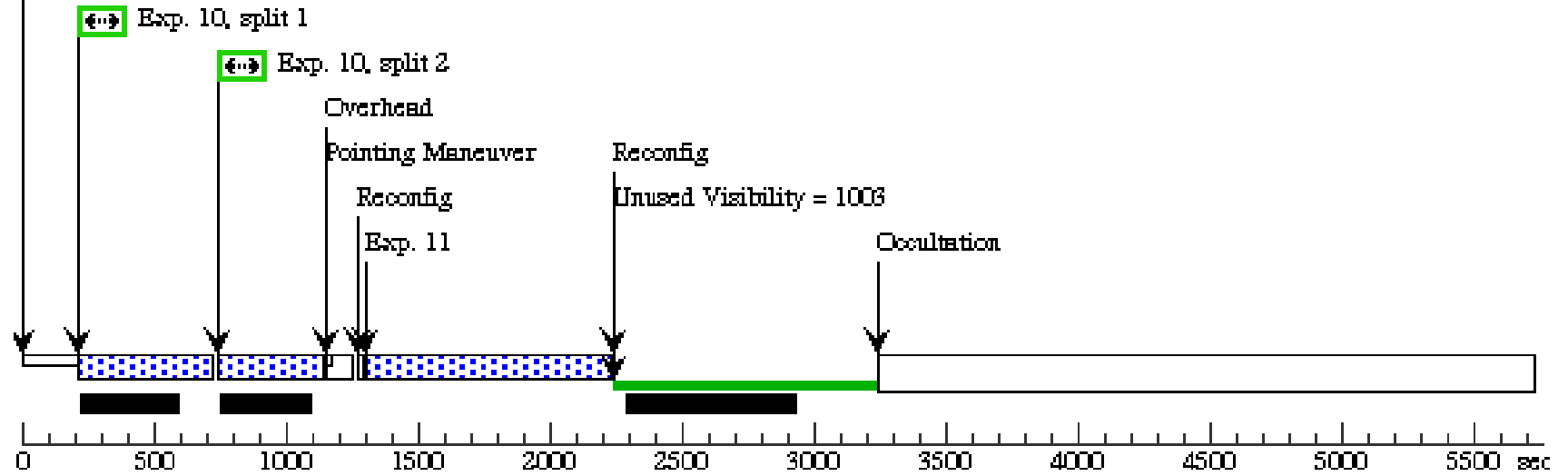
8	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.2,47 .5	Sequence 6-9 Non-Int in Visit 02	50.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
9	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2; CENTERAXIS1=T ARGET; CENTERAXIS2=T ARGET; SIZEAXIS1=400; SIZEAXIS2=400	POS TARG -50.2,47 .5	Sequence 6-9 Non-Int in Visit 02	200.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
10	(1) GD153	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	CR-SPLIT=2	POS TARG -50.2,47 .5		800.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
11	(1) GD153	WFC3/IR, MULTIACCUM, IR-FIX	F098M	SAMP-SEQ=STEP1 00; NSAMP=15	POS TARG -38.0,+3 2.0		[==>]	[2]

Orbit Structure



Orbit 2

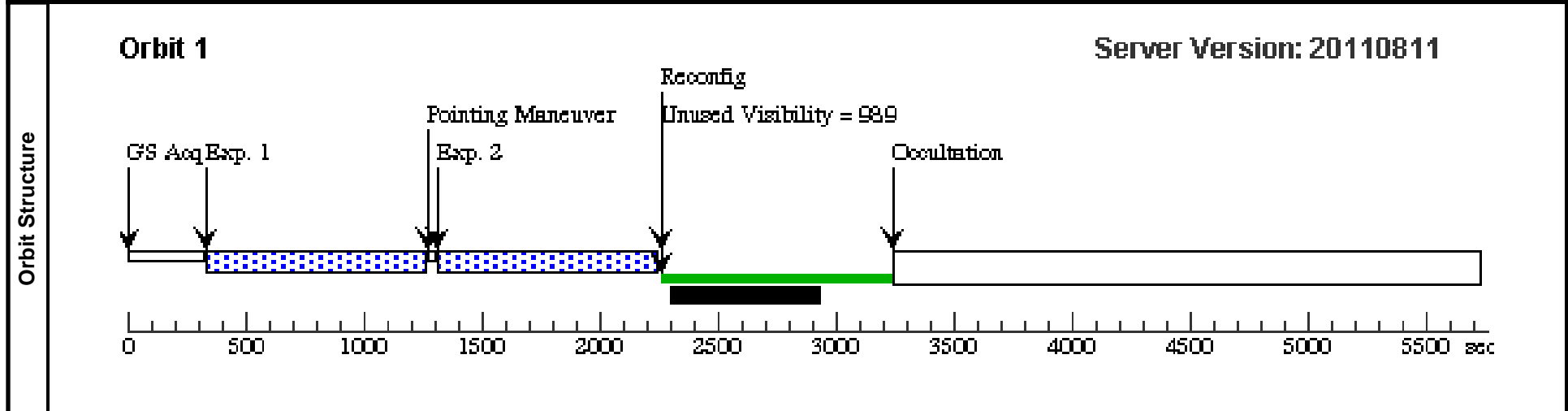
GS Reacq



Visit	Proposal 12701, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none) <i>Comments: To avoid affecting subsequent observations with persistence, no WFC3/IR exposures should be scheduled in the 2 orbits following the completion of the last exposure in Visit 03.</i>				

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	GD153	RA: 12 57 2.3700 (194.2598750d) Dec: +22 01 56.00 (22.03222d) Equinox: J2000	Proper Motion RA: -0.0015 sec of time/yr Proper Motion Dec: -0.1893 arcsec/yr Epoch of Position: 1982.38	V=13.346+/-0.005	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) GD153	WFC3/IR, MULTIACCUM, IR-FIX	F098M	SAMP-SEQ=STEP1 00; NSAMP=15	POS TARG 5.0,5.0; GS ACQ SCENARI O BASE1B3		[==>]	[1]
2		(1) GD153	WFC3/IR, MULTIACCUM, IR-FIX	F098M	SAMP-SEQ=STEP1 00; NSAMP=15	POS TARG +37.0,+ 31.0		[==>]	[1]	



Visit	Proposal 12701, Visit 04 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none) <i>Comments: To avoid affecting subsequent observations with persistence, no WFC3/IR exposures should be scheduled in the 2 orbits following the completion of the last exposure in Visit 04.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	GD153	RA: 12 57 2.3700 (194.2598750d) Dec: +22 01 56.00 (22.03222d) Equinox: J2000	Proper Motion RA: -0.0015 sec of time/yr Proper Motion Dec: -0.1893 arcsec/yr Epoch of Position: 1982.38	V=13.346+/-0.005	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) GD153	(1) GD153	WFC3/IR, MULTIACCUM, IR-FIX	F098M	SAMP-SEQ=STEP1 00; NSAMP=15	POS TARG +38.0,-3 2.0		[==>]	[1]
	2	(1) GD153	(1) GD153	WFC3/IR, MULTIACCUM, IR-FIX	F098M	SAMP-SEQ=STEP1 00; NSAMP=15	POS TARG -37.0,-3 1.0		[==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20110811</p> <p>The diagram shows a timeline for Orbit 1 from 0 to 5500 seconds. Key events are marked with arrows: GS Acq (at ~100s), Exp. 1 (blue checkered block from ~200s to ~1200s), Pointing Maneuver (at ~1300s), Exp. 2 (blue checkered block from ~1400s to ~2200s), Reconfig (green block from ~2300s to ~2900s), Unused Visibility = 979 (black block from ~2400s to ~2900s), and Occultation (black block from ~3200s to ~5500s).</p>									