



12092 - UVIS Stray Light Characterization

Cycle: 17, 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) HOR-TARGET	WFC3/UVIS	1	09-Nov-2010 21:04:58.0	yes
02	(2) VER-TARGET-COPY	WFC3/UVIS	1	09-Nov-2010 21:05:21.0	yes

2 Total Orbits Used

ABSTRACT

This on-orbit test will characterize the extent of scattering surfaces outside the WFC3/UVIS detector FOV. During SMOV, diffuse, structured, linear streaks were noted in several images. Depending upon the specific image, the streaks were approximately perpendicular to either the CCD rows, or columns. The features move in proportion to small dithers. The source of the stray light is, apparently, an external target, although the nature of the scattering process, nor the scattering surface has been identified. Similar features have been observed in GO exposures. The stray light is more commonly found in red filter images. This proposal will repeat exposures of the targets observed to cause stray light, but substantially expand the range of dithers to better limit the extent of the scattering surface.

OBSERVING DESCRIPTION

The test will be comprised of horizontal and vertical step-and-dwell scans of exposures of two targets in the F814W. That filter favors the brightness of a stray light image. The science targets are selected from SMOV and GO exposures that have presented horizontal and vertical linear stray light feature. For both targets, a step and dwell pattern is executed in the X and Y POSTARG directions. The positions range from -32 arcsec to +32 arcsec, in a geometric progression of step sizes (2, 4, 8, 16, and 32 arcsec from the default pointing). The CR-SPLIT=NO/50-second exposures are read out with BIN=3. On-chip binning reduces data volume, while allowing full-detector readouts, maintaining adequate spatial resolution of the diffuse streaks, and improving S/N for these low surface brightness features.

The first orbit obtains the horizontal and vertical scans of the horizontal stray light target. The second and third orbits obtain the scans of the vertical stray light target. The readout of the horizontal subarray is faster than of the vertically oriented subarray, which accounts for the greater time required to observe the vertically oriented stray light.

REAL TIME JUSTIFICATION

Not applicable.

CALIBRATION JUSTIFICATION

Knowledge of stray light from sources outside the detector FOV will benefit planning science observations in crowded fields, or in the vicinity of bright targets. Dither patterns used in the discovery observations cover approximately 1 arcsecond, so these will observations will explore the arc-minute scale. A census of GO and Calibration images has identified exposures in 11 GO VISITs and 5 Calibration VISITs with stray light streaks.

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Wed Nov 10 02:05:28 GMT 2010

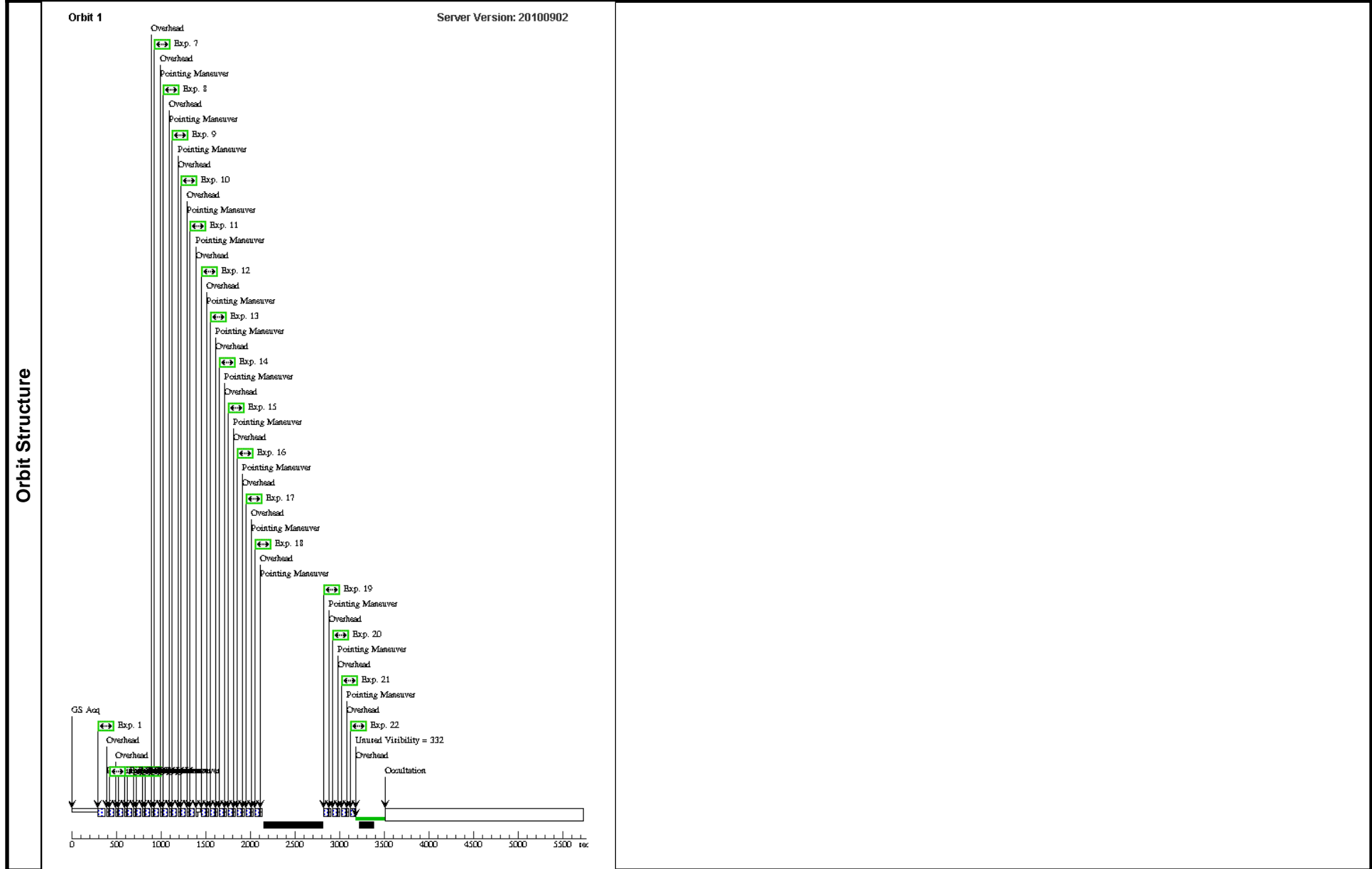
Visit	<p>Proposal 12092, Visit 01, implementation</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: ORIENT 261.872513D TO 261.872513 D</p> <p><i>Comments: ORIENT is the same as SM4/COS 11515 (Post-SM4 Cross-Instrument Light Leak Test) PA_V3+180.</i></p>												
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>HOR-TARGET</td> <td>RA: 03 09 27.1737 (47.3632238d) Dec: +61 35 33.39 (61.59261d) Equinox: J2000</td> <td>Proper Motion RA: null Proper Motion Dec: null Epoch of Position:</td> <td>V=13.3+/-</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: Target from SM4/COS 11515, Visit 01, WFC3 data set iacs01tq. Coordinates taken from header RA_APER & DEC_APER for aperture UVIS-CENTER.</i></p>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	HOR-TARGET	RA: 03 09 27.1737 (47.3632238d) Dec: +61 35 33.39 (61.59261d) Equinox: J2000	Proper Motion RA: null Proper Motion Dec: null Epoch of Position:	V=13.3+/-
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous								
(1)	HOR-TARGET	RA: 03 09 27.1737 (47.3632238d) Dec: +61 35 33.39 (61.59261d) Equinox: J2000	Proper Motion RA: null Proper Motion Dec: null Epoch of Position:	V=13.3+/-	Reference Frame: ICRS								

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#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -60,0; GS ACQ SCENARI O BASE1B3	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
<i>Comments: These 10 sequential exposures explore translation along X of a target that produces a horizontal stray light streak.</i>									
2		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -48,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
3		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -36,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
4		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -24,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
5		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -12,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
6		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 0,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
7		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 12,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
8		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 24,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
9		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 36,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
10		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 48,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
11		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 60,0	Sequence 1-11 Non-Int in Visit 01	50. Secs [==>]	[1]
12		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -60,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
<i>Comments: These 10 sequential exposures explore translation along Y of a target that produces a horizontal stray light streak.</i>									
13		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -48,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
14		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -36,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
15		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -24,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
16		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG -12,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
17		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 0,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
18		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 12,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
19		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 24,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]
20		(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 36,0	Sequence 12-22 Non-Int in Visit 01	50. Secs [==>]	[1]

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21	(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 48,0	Sequence 12-22 Non-Int in Visit 01	50 Secs [==>]	[1]
22	(1) HOR-TARGET	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	CR-SPLIT=NO; BIN=3	POS TARG 60,0	Sequence 12-22 Non-Int in Visit 01	50 Secs [==>]	[1]



Proposal 12092 - Visit 02UVIS Stray Light Characterization

Visit	Proposal 12092, Visit 02, implementation Wed Nov 10 02:05:30 GMT 2010 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 105.283203D TO 105.283203 D <i>Comments: ORIENT is the same as GO 11832 (The Structure and Physics of the Youngest Radio Galaxies) PA V3+180.</i>					
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
(2)		VER-TARGET-COPY	RA: 14 59 24.7000 (224.8529167d) Dec: -16 41 36.00 (-16.69333d) Equinox: J2000	Proper Motion RA: null Proper Motion Dec: null Epoch of Position:	V=13.3+/-	Reference Frame: ICRS
<i>Comments: Target from GO 11832, Visit 01, WFC3 data set ib8t01030. Coordinates taken from header RA_APER & DEC_APER for aperture UVIS-FIX.</i>						

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#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG -60,0; GS ACQ SCENARI O BASE1B3	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
<i>Comments: These 10 sequential exposures explore translation along X of a target that produces a horizontal stray light streak.</i>									
2		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG -48,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
3		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG -36,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
4		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG -24,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
5		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG -12,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
6		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 0,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
7		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 12,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
8		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 24,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
9		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 36,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
10		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 48,0	Sequence 1-11 Non-Int in Visit 02	50. Secs [==>]	[1]
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17		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 0,0	Sequence 12-22 Non-Int in Visit 02	50. Secs [==>]	[1]
18		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 12,0	Sequence 12-22 Non-Int in Visit 02	50. Secs [==>]	[1]
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20		(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 36,0	Sequence 12-22 Non-Int in Visit 02	50. Secs [==>]	[1]

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21	(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 48,0	Sequence 12-22 Non-Int in Visit 02	50 Secs [==>]	[1]
22	(2) VER-TARGET-COPY	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO; BIN=3	POS TARG 60,0	Sequence 12-22 Non-Int in Visit 02	50 Secs [==>]	[1]

