

# 12096 - COS FUV Detector Lifetime Adjustment and Sensitivity Test

Cycle: 17, Proposal Category: CAL/COS (Availability Mode: RESTRICTED)

#### **INVESTIGATORS**

HIVE DITOITE		
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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) WD0947+857 NONE WAVE	COS COS/FUV COS/NUV	2	05-Mar-2010 21:02:49.0	yes
02	(2) WD1057+719 NONE	COS COS/FUV	1	05-Mar-2010 21:03:03.0	yes

<sup>3</sup> Total Orbits Used

#### **ABSTRACT**

This program will test the COS FUV Detector sensitivity at several 'lifetime adjustment' (cross-dispersion) positions. By collecting identical spectra at different positions on the detector, including some relatively pristine regions, it will be possible to determine if the time dependent-sensitivity changes seen since SM4 are due to illumination, and thus limited to the areas that have collected the most counts.

Proposal 12096 (STScI Edit Number: 0, Created: Friday, March 5, 2010 9:03:08 PM EST) - Overview

In addition, the gain and flat field properties of the detector at the additional lifetime positions will be measured, so that if a permanent lifetime adjustment is found to be necessary, the best location can be identified.

#### **OBSERVING DESCRIPTION**

Spectra will be taken at five detector 'lifetime adjustment' (cross-dispersion) positions at a single central wavelength for each FUV grating by using POSTARGs and aperture motions. The targets and acquisition strategies are identical to those used in program 11897 (COS FUV Spectroscopic Sensitivity Monitoring), so comparison with data from that program should be straightforward.

For G140L, a spectrum will also be collected at a sixth position, corresponding to the location of a spectrum taken as part of program 11491 (COS FUV External Flat Flelds).

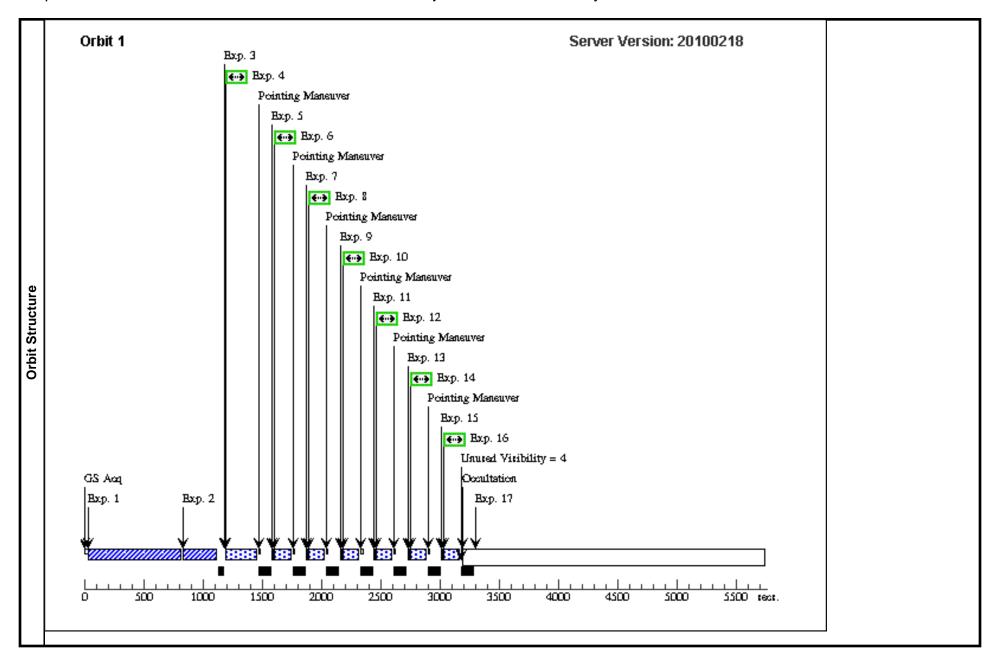
	Proposal 12096, Visit 01, impleme	entation			Sat Mar 06 02:03:08 GMT 2010
١	Diagnostic Status: Warning				
Visit	Scientific Instruments: COS, COS/	NUV, COS/FUV			
>	Special Requirements: SCHED 100	)%			
	Comments: G140L/1230 G130M/1309				
	(Visit 01) Warning (Orbit Planner):	POS TARG OUTSIDE OF APERTURE			
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l B	(Visit 01) Warning (Orbit Planner):	POS TARG OUTSIDE OF APERTURE			
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-	(Visit 01) Warning (Orbit Planner):	POS TARG OUTSIDE OF APERTURE			
_		POS TARG OUTSIDE OF APERTURE			
ts	# Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
rgets	(1) WD0947+857	RA: 09 57 54.4230 (149.4767625d)	Proper Motion RA: -0.01747s/yr	V=15.9	Reference Frame: ICRS
⊒		Dec: +85 29 40.91 (85.49470d)	Proper Motion Dec: -0.0253"/yr		
<u>و</u> ا		Equinox: J2000	Epoch of Position: 1997.19		
Fixe	Comments: HST FASTEX standard PM, coords from GSC2				

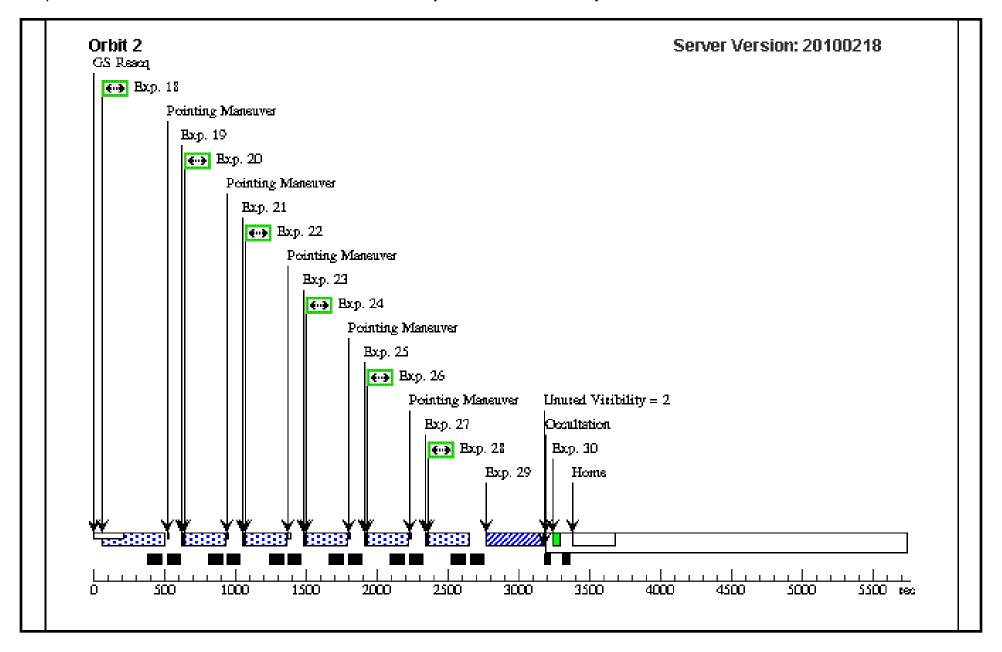
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) WD0947+857	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	STEP-SIZE=1.767;			85 Secs	
	- BOA ACQ /SEARCH				SCAN-SIZE=2			[==>]	[1]
Cor	nments: ACQ i	dentical to program 1	1897						
SN:	=60 in 85 secon	nds, brightest pixel=5	.9 cts/s (COS.A217972)						
2		(1) WD0947+857	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				85 Secs	
	- BOA ACQ /IMAGE							[==>]	[1]
Cor	mments: ACQ i	identical to program 1	1897						
SN:	=60 in 85 secon	nds, 43 counts in regio	on, brightest pixel=5.9 cts/s (COS.A21	7972)					
3	Aperture Lif	NONE	COS, ALIGN/APER		XAPER=0;			0.0 Secs	
	etime Positi on 1				YAPER=0			[==>]	[1]
Cor	nments: Move	to aperture location f	or Lifetime Position 1 (centered)						
4		(1) WD0947+857	COS/FUV, TIME-TAG, PSA	G140L	BUFFER-TIME=90;	POS TARG 0.0,0.0		90 Secs	
	, LT=1			1230 A	FP-POS=3;			[==>81.0 Secs ]	
					FLASH=S0075D00				[1]
Cor	nments: Lifetin	ne Position 1: 0.0 arc:	sec		,				
5	Aperture Po	NONE	COS, ALIGN/APER		XAPER=-25;			0.0 Secs	
5 - Con	sition used i n 11491				YAPER=0			[==>]	[1]
Cor	nments: Move	to aperture location u	sed during 11491/flat field: correspon	ds to diplacement	across dispersion of: +1	.2 arcsec (2.5x0.476)			
Thi	s aperture mov	e is to an offset aperti	re position prior to obtaining an expo	sure at the cross d	ispersion position used in	program 11491.			
6		(1) WD0947+857	COS/FUV, TIME-TAG, PSA	G140L		POS TARG 0.0,1.2;		90 Secs	
	A, 11491 Po sition			1230 A	FP-POS=3;	SPEC COM INSTR		[==>87.0 Secs ]	
	Sition				FLASH=S0075D00	ELNOAPMAIN			[1]
Co	mmanta. Pasiti	on used in 11491: +1.	2 arasaa		7				
7	Aperture Lif		COS, ALIGN/APER		XAPER=-63;			0.0 Secs	
	etime Positi on 2	NONE	cos, reform ex		YAPER=0			[==>]	[1]
Cor		to aperture location f	or Lifetime Position 2. This correspond	ls to dinlacement a	cross dispersion of: +31	0 arcsec (6 3x0 476)		-	[1]
			1	•		,			
1 hi		e is to an offset aperti 0 (1) WD0947+857	ure position prior to obtaining an expo- COS/FUV, TIME-TAG, PSA	sure at one of the f G140L		POS TARG 0.0,+3.0	n	90 Secs	
l°	A, LT=2	(1) W D094/+83/	COS/FOV, THVIE-TAG, PSA	1230 A	FP-POS=3;	;	U	J = 81.0 Secs	
				1230 A	FLASH=S0075D00	SPEC COM INSTR ELNOAPMAIN		[>01.0 Secs ]	[1]
					7	LLIOIN MININ			
Coi	mments: Lifetin	ne Position 2: +3.0 ar	csec						

Comments: Lifetime Position 5: 4.0.0 arcsec   12.0x0.476	9 Aperture Lif NONE	COS, ALIGN/APER		XAPER=-126;	0.0 Secs	
This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.   90	etime Positi on 3			YAPER=0	[==>]	[1]
10	Comments: Move to aperture loca	ion for Lifetime Position 3. This correspo	onds to diplacemen	t across dispersion of: +6.0 arcsec (12.6x0.476)		
A, LT=3	This aperture move is to an offset o	perture position prior to obtaining an ex	posure at one of th	e four alternate lifetime adjustment locations.		
Comments: Lifetime Position 3: +6.0 arcsec		557 COS/FUV, TIME-TAG, PSA	G140L	BUFFER-TIME=90; POS TARG 0.0,+6.0	90 Secs	
Comments: Lifetime Position 3: +6.0 arcsec	A, LT=3		1230 A		[==>81.0 Secs]	
Comments: Lifetime Position 3; +6.0 arcsec				1 LASII S00/3D00 FI NOADMAIN		[1]
E   S   Comments: Move to aperture location for Lifetime Position 5. This corresponds to diplacement across dispersion of: -6.0 arcsec (-12.6x0.476)    This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.    2	Comments: Lifetime Position 3: +(	6.0 arcsec		,		
Comments: Move to aperture location for Lifetime Position 5. This corresponds to diplacement across dispersion of: -6.0 arcsec (-12.6x0.476)   This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.		COS, ALIGN/APER		XAPER=126;	0.0 Secs	
This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.				YAPER=0	[==>]	[1]
12   G140L/1230 (1) WD0947+857   COS/FUV, TIME-TAG, PSA   G140L   BUFFER-TIME=90; POS TARG 0.0, -6.0;   90 Secs	Comments: Move to aperture locar	ion for Lifetime Position 5. This correspo	onds to diplacemen	t across dispersion of: -6.0 arcsec (-12.6x0.476)		
A, LT=5  1230 A FP-POS=3; SPEC COM INSTR FLASH=S0075D00    FLASH=S0075D00   FLNOAPMAIN   FLASH=S0075D00	This aperture move is to an offset o	perture position prior to obtaining an ex	posure at one of th	e four alternate lifetime adjustment locations.		
Comments: Lifetime Position 5: -6.0 arcsec		COS/FUV, TIME-TAG, PSA	G140L	BUFFER-TIME=90; POS TARG 0.0,-6.0;	90 Secs	
Comments: Lifetime Position 5: -6.0 arcsec	A, LT=5		1230 A	FP-POS=3; SPEC COM INSTR	[==>81.0~Secs~]	
Comments: Lifetime Position 5: -6.0 arcsec  13 Aperture Lif NONE COS, ALIGN/APER XAPER=63; YAPER=0  14 Comments: Move to aperture location for Lifetime Position 4. This corresponds to diplacement across dispersion of: -3.0 arcsec (-6.3x0.476)  This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.  14 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,-3.0; 90 Secs  1230 A FP-POS=3; SPEC COM INSTR FLASH=S0075D00  FLASH=S0075D00 ELNOAPMAIN  7  Comments: Lifetime Position 4: -3.0 arcsec  15 Aperture Lif NONE COS, ALIGN/APER XAPER=0; 0.0 Secs [r=>]  16 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,0.0  90 Secs				FLASH=S0075D00 ELNOAPMAIN		[1
13   Aperture Lif NONE   COS, ALIGN/APER   XAPER=63;   YAPER=0   [=>]	Comments: Lifetime Position 5: -6	0 arcsec		1		
on 4  Comments: Move to aperture location for Lifetime Position 4. This corresponds to diplacement across dispersion of: -3.0 arcsec (-6.3x0.476)  This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.  14 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,-3.0; 90 Secs	13 Aperture Lif NONE			XAPER=63;	0.0 Secs	
Comments: Move to aperture location for Lifetime Position 4. This corresponds to diplacement across dispersion of: -3.0 arcsec (-6.3x0.476)  This aperture move is to an offset aperture position prior to obtaining an exposure at one of the four alternate lifetime adjustment locations.  14 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,-3.0; 90 Secs [==>81.0 Secs ]  1230 A FP-POS=3; SPEC COM INSTR FLASH=S0075D00 FLANGAPMAIN  7  Comments: Lifetime Position 4: -3.0 arcsec  15 Aperture Lif NONE COS, ALIGN/APER XAPER=0; 0.0 Secs [==>]  Comments: Move to aperture location 1 (centered)  16 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,0.0 90 Secs				YAPER=0	[==>]	[1
14 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0, -3.0;		ion for Lifetime Position 4. This correspo	onds to diplacemen	t across dispersion of: -3.0 arcsec (-6.3x0.476)		
14 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0, -3.0;	This aperture move is to an offset.	unerture position prior to obtaining an ex	nosure at one of th	e four alternate lifetime adjustment locations		
1230 A   FP-POS=3;   SPEC COM INSTR   [==>81.0 Secs ]	1 10	· · · · · · · · · · · · · · · · · · ·	*	<u> </u>	90 Secs	
FLASH=S0075D00   ELNOAPMAIN	A, LT=4		1230 A	FP-POS=3; SPEC COM INSTR	f = > 81.0  Secs  1	
Comments: Lifetime Position 4: -3.0 arcsec				FLASH=S0075D00 ELNOAPMAIN		[1]
15   Aperture Lif   NONE   COS, ALIGN/APER   XAPER=0;   Q.0 Secs   Section   Position   1   (ventered)				7		
etime Positi on 1  Comments: Move to aperture location 1 (centered)  16 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,0.0 90 Secs	V			VADED_0.	0.0 Saga	
Comments: Move to aperture location 1 (centered)  16 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,0.0 90 Secs		COS, ALIGN/APER		·		
16 G140L/1230 (1) WD0947+857 COS/FUV, TIME-TAG, PSA G140L BUFFER-TIME=90; POS TARG 0.0,0.0 90 Secs				TALEK-0	1>1	[1]
			G1 107	DATE OF THE CO. DOG THE DOG OF O	20.7	
. LT=1	16 G140L/1230 (1) WD0947+8 , LT=1	557 COS/FUV, TIME-TAG, PSA				
1230 A FP-POS=3; $[==>81.0 \text{ Secs }]$	, 21 1		1230 A	,	[==>81.0 Secs]	
FLASH=S0075D00 7						[1]
Comments: Repeat Lifetime Position 1: 0.0 arcsec	Comments: Repeat Lifetime Positi	on 1: 0.0 arcsec				Į

17 Aperture Lif NONE etime Positi	COS, ALIGN/APER		XAPER=0;		0.0 Secs	
on 1			YAPER=0		[==>]	[1]
Comments: Move to aperture locat	ion for Lifetime Position 1 (centered)					
18 G130M/129 (1) WD0947+8	57 COS/FUV, TIME-TAG, PSA	G130M		POS TARG 0.0,0.0	230 Secs	
1, LT=1		1291 A	0;		[==>234.0 Secs ]	
			FP-POS=3; FLASH=S0210D01			[2]
			2			
Comments: Lifetime Position 1 (cer	ntered)					
19 Aperture Lif NONE	COS, ALIGN/APER		XAPER=-63;		0.0 Secs	
etime Positi on 2			YAPER=0		[==>]	[2]
Comments: Move to aperture locat	ion for Lifetime Position 2. This correspo	nds to diplacement	t across dispersion of: +3.0	0 arcsec (6.3x0.476)		Į.
This aparture move is to an offset a	perture position prior to obtaining an ex	nosura at ona of the	e four alternate lifetime adi	iustment locations		
20 G130M/129 (1) WD0947+8		G130M		POS TARG 0.0,+3.0	230 Secs	
1 A, LT=2	57 CO5/10 V, TIME-1AG, 15A	1291 A	0;	;	[==>234.0  Secs ]	
		12/111	FP-POS=3;	SPEC COM INSTR	i v ze ne sees j	[2]
			FLASH=S0210D01	ELNOAPMAIN		[2]
Comments Lifetime Besition 2. 12	0		2			
Comments: Lifetime Position 2: +3 21 Aperture Lif NONE	COS. ALIGN/APER		XAPER=-126;		0.0 Secs	
etime Positi	COS, ALIGIVAI EK		YAPER=0		[==>1	[2]
on 3				0 (10 ( 0 47()	1 - 1	[2]
Comments: Move to aperture locati	ion for Lifetime Position 3. This correspo	nas to aiplacement	t across dispersion of: +0.0	0 arcsec (12.0x0.4/6)		
1 12	perture position prior to obtaining an ex					
22 G130M/129 (1) WD0947+8 1 A. LT=3	57 COS/FUV, TIME-TAG, PSA	G130M	BUFFER-TIME=13 0;	POS TARG 0.0,+6.0	230 Secs	
1 A, L1=3		1291 A	FP-POS=3;	, SPEC COM INSTR	[==>234.0  Secs ]	
			FLASH=S0210D01	ELNOAPMAIN		[2]
			2			
Comments: Lifetime Position 3: +6	.0 arcsec					
23 Aperture Lif NONE	COS, ALIGN/APER		XAPER=126;		0.0 Secs	
etime Positi on 5			YAPER=0		[==>]	[2]
Comments: Move to aperture locat	ion for Lifetime Position 5. This correspo	nds to diplacement	t across dispersion of: -6.0	arcsec (-12.6x0.476)		•
This aparture move is to an offset a	perture position prior to obtaining an ex	posure at one of the	o four alternate lifetime adi	iustment locations		
24 G130M/129 (1) WD0947+8		G130M		POS TARG 0.0,-6.0;	230 Secs	
1 A, LT=5	c. Cosi e i, inili ino, ish	1291 A	0;	SPEC COM INSTR	[==>234.0  Secs ]	
			FP-POS=3;	ELNOAPMAIN	227.0 5005	[2]
			FLASH=S0210D01			[2]
1			2			
Comments: Lifetime Position 5: -6.						

25	Aperture Lif NONE	COS, ALIGN/APER		XAPER=63;		0.0 Secs	
	etime Positi on 4			YAPER=0		[==>]	[2]
Con	nments: Move to aperture location j	for Lifetime Position 4. This correspond	ds to diplacement d	across dispersion of: -3.0	arcsec (-6.3x0.476)		
This	s aperture move is to an offset apert	ure position prior to obtaining an expo	sure at one of the	four alternate lifetime adi	iustment locations.		
	G130M/129 (1) WD0947+857	COS/FUV, TIME-TAG, PSA	G130M		POS TARG 0.0,-3.0;	230 Secs	
	1 A, LT=4		1291 A	0;	SPEC COM INSTR	[==>234.0 Secs ]	
				FP-POS=3; FLASH=S0210D01	ELNOAPMAIN		[2]
				2			
Con	nments: Lifetime Position 4: -3.0 ar	csec					
27	Aperture Lif NONE	COS, ALIGN/APER		XAPER=0;		0.0 Secs	
	etime Positi on 1			YAPER=0		[==>]	[2]
Con	nments: Move to back aperture loca	ation 1 (centered)					
28	G130M/129 (1) WD0947+857	COS/FUV, TIME-TAG, PSA	G130M		POS TARG 0.0,0.0	230 Secs	
	1, LT=1		1291 A	0;		$[==>234.0 \ Secs \ ]$	
				FP-POS=3;			[2]
				FLASH=S0210D01 2			
Con	nments: Repeat Lifetime Position 1:	0.0 arcsec					
29	MIRRORA (1) WD0947+857	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			85 Secs	
	- BOA ACQ /IMAGE					[==>]	[2]
Con	nments: SN=90 in 85 seconds, brigh	htest pixel=5.9 cts/s (COS.A217972)					
30	MIRRORA WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA			30 Secs	
	- WAVECA					I = = > J	[2]





	Proposal 12096, Visit 02, implemen	ntation			Sat Mar 06 02:03:11 GMT 2010
±	Diagnostic Status: Warning				
Vis	Scientific Instruments: COS, COS/FU	UV			
-	Special Requirements: SCHED 100%	6			
	Comments: G160M/1600				
S	(Visit 02) Warning (Orbit Planner): I	POS TARG OUTSIDE OF APERTURE			
Stj.	(Visit 02) Warning (Orbit Planner): I	POS TARG OUTSIDE OF APERTURE			
۱ë		POS TARG OUTSIDE OF APERTURE			
ag	(Visit 02) Warning (Orbit Planner): I	POS TARG OUTSIDE OF APERTURE			
Ē					
S	# Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
argets	(2) WD1057+719	RA: 11 00 34.2200 (165.1425833d)	Proper Motion RA: -0.00973s/yr	V=14.68	Reference Frame: ICRS
a.		Dec: +71 38 2.99 (71.63416d)	Proper Motion Dec: -0.02"/yr		
ΙĘ		Equinox: J2000	Epoch of Position: 2000		
Fixe	Comments: HST FASTEX standard				
一定	<i>PM, coords from USNOB GSC2 coords are 11:00:34.25, +71:</i>	38:02 97 1997 19 enoch			

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) WD1057+719	COS/FUV, ACQ/SEARCH, PSA	G160M	SCAN-SIZE=3			1 Secs	
	CQ/SEARC H			1600 A				[==>]	[1]
Com Targ	ments: Spectro et Acq is ident	oscopic acquisition fo tical to program 1189	r G160M - step 1 7						
2	G160M - A CQ/PEAKX	(2) WD1057+719	COS/FUV, ACQ/PEAKXD, PSA	G160M				1 Secs	
	D D			1600 A				[==>]	[1]
		oscopic acquisition fo tical to program 1189							
3		(2) WD1057+719	COS/FUV, ACQ/PEAKD, PSA	G160M	STEP-SIZE=0.6;			1 Secs	
	CQ/PEAKD			1600 A	NUM-POS=9			[==>]	[1]
Com: Targ	ments: Spectro	oscopic acquisition fo tical to program 1189	or G160M - step 3 07						
4	Aperture Lif	NONE	COS, ALIGN/APER		XAPER=0;			0.0 Secs	
	etime Positi on 1				YAPER=0			[==>]	[1]
Com		o aperture location fo	or Lifetime Position 1 (centered)						
5		(2) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=15	POS TARG 0.0,0.0	)	150 Secs	
	7, LT=1			1577 A	0;			[==>143.0 Secs ]	
					FP-POS=3;				[1]
					FLASH=S0130D01				1-5
Com	ments: Lifetim	ne Position 1: 0.0 arcs	sec						
6	Aperture Lif etime Positi	NONE	COS, ALIGN/APER		XAPER=-63;			0.0 Secs	
	on 2				YAPER=0			I==>J	[1]
Com	ments: Move 1	to aperture location fo	or Lifetime Position 2. This correspond	ds to diplacement a	cross dispersion of: +3.	0 arcsec (6.3x0.476)			•
This	-	70 1	ure position prior to obtaining an expo						1
7	G160M/157 7 A, LT=2	(2) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=15 0;	POS TARG 0.0,+3	5.0	150 Secs	
	/ A, L1-2			1577 A	FP-POS=3;	, SPEC COM INSTI	R	[==>143.0  Secs ]	
					FLASH=S0130D01	ELNOAPMAIN	i.		[1]
					2				
Com	ments: Lifetim	ne Position 2: +3.0 ar	csec						
8	Aperture Lif etime Positi	NONE	COS, ALIGN/APER		XAPER=-126;			0.0 Secs	
	on 3				YAPER=0			[==>]	[1]
Com	ments: Move 1	o aperture location fo	or Lifetime Position 3. This correspond	ds to diplacement a	cross dispersion of: +6.	0 arcsec (12.6x0.476)	)		
This	aperture move	e is to an offset apertu	re position prior to obtaining an expo	sure at one of the f	our alternate lifetime ad	justment locations.			
1									
1									
1									

	G160M/157 (2) WD1057+719 7 A, LT=3	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01 2	POS TARG 0.0,+6.0 ; SPEC COM INSTR ELNOAPMAIN	150 Secs [==>143.0 Secs ]	[1]
Con	ments: Lifetime Position 3: +6.0 ar	csec					
10	Aperture Lif NONE etime Positi	COS, ALIGN/APER		XAPER=126;		0.0 Secs	
	on 5			YAPER=0		[==>J	[1]
Con	ments: Move to aperture location fo	or Lifetime Position 5. This correspo	nds to diplacement	across dispersion of: -6.0	arcsec (-12.6x0.476)		
This	aperture move is to an offset apertu	ıre position prior to obtaining an exp	oosure at one of the	four alternate lifetime adii	stment locations.		
11	G160M/157 (2) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M	<u> </u>	POS TARG 0.0,-6.0;	150 Secs	
	7 A, LT=5		1577 A	0;	SPEC COM INSTR	[==>143.0 Secs ]	
				FP-POS=3;	ELNOAPMAIN		[1]
				FLASH=S0130D01			
Con	ments: Lifetime Position 5: -6.0 arc	esec					•
12	Aperture Lif NONE	COS, ALIGN/APER		XAPER=63;		0.0 Secs	
	etime Positi on 4			YAPER=0		<i>[==&gt;1</i>	
Con	ments: Move to aperture location fo	or Lifetime Position 4. This correspo	nds to diplacement	across dispersion of: -30	arcsec (-6.3x0.476)	1 7 1	[1]
	aperture move is to an offset aperture G160M/157 (2) WD1057+719	or Lifetime Position 4. This correspoure position prior to obtaining an exp COS/FUV, TIME-TAG, PSA	*	four alternate lifetime adju		150 Secs	
This	aperture move is to an offset apertu	ure position prior to obtaining an exp	oosure at one of the	four alternate lifetime adju	istment locations.		[1]
This	aperture move is to an offset aperture G160M/157 (2) WD1057+719	re position prior to obtaining an exp COS/FUV, TIME-TAG, PSA	oosure at one of the G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01	ustment locations.  POS TARG 0.0,-3.0; SPEC COM INSTR	150 Secs	
This	aperture move is to an offset apertus G160M/157 (2) WD1057+719 7 A, LT=4  ments: Lifetime Position 4: -3.0 arc Aperture Lif NONE	re position prior to obtaining an exp COS/FUV, TIME-TAG, PSA	oosure at one of the G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01	ustment locations.  POS TARG 0.0,-3.0; SPEC COM INSTR	150 Secs	
This 13 Com	aperture move is to an offset apertu G160M/157 (2) WD1057+719 7 A, LT=4 ments: Lifetime Position 4: -3.0 arc	re position prior to obtaining an exp COS/FUV, TIME-TAG, PSA	oosure at one of the G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01	ustment locations.  POS TARG 0.0,-3.0; SPEC COM INSTR	150 Secs [==>143.0 Secs ]	
<i>This</i> 13 <i>Con</i> 14	aperture move is to an offset aperture Move is to an offset aperture G160M/157 (2) WD1057+719 7 A, LT=4  ments: Lifetime Position 4: -3.0 arc Aperture Lif NONE etime Positi	cos, ALIGN/APER	oosure at one of the G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01 2	ustment locations.  POS TARG 0.0,-3.0; SPEC COM INSTR	150 Secs [==>143.0 Secs ]  0.0 Secs	[1]
<i>This</i> 13 <i>Con</i> 14	aperture move is to an offset aperture G160M/157 (2) WD1057+719 7 A, LT=4  ments: Lifetime Position 4: -3.0 arc Aperture Lif NONE etime Positi on 1 ments: Move back to aperture locate G160M/157 (2) WD1057+719	cos, ALIGN/APER	oosure at one of the G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01 2  XAPER=0; YAPER=0 BUFFER-TIME=15	POS TARG 0.0,-3.0; SPEC COM INSTR ELNOAPMAIN	150 Secs [==>143.0 Secs ]  0.0 Secs	[1]
This 13  Con 14  Con	aperture move is to an offset apertus G160M/157 (2) WD1057+719 7 A, LT=4  ments: Lifetime Position 4: -3.0 arc Aperture Lif NONE etime Positi on 1  ments: Move back to aperture locate	cosition prior to obtaining an exp COS/FUV, TIME-TAG, PSA csec COS, ALIGN/APER	oosure at one of the G160M 1577 A	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01 2  XAPER=0; YAPER=0  BUFFER-TIME=15 0;	POS TARG 0.0,-3.0; SPEC COM INSTR ELNOAPMAIN	150 Secs [==>143.0 Secs ]  0.0 Secs [==>]	[1]
This 13  Con 14  Con	aperture move is to an offset aperture G160M/157 (2) WD1057+719 7 A, LT=4  ments: Lifetime Position 4: -3.0 arc Aperture Lif NONE etime Positi on 1 ments: Move back to aperture locate G160M/157 (2) WD1057+719	cosition prior to obtaining an exp COS/FUV, TIME-TAG, PSA csec COS, ALIGN/APER	G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01 2  XAPER=0; YAPER=0  BUFFER-TIME=15 0; FP-POS=3;	POS TARG 0.0,-3.0; SPEC COM INSTR ELNOAPMAIN		[1]
This 13  Con 14  Con	aperture move is to an offset aperture G160M/157 (2) WD1057+719 7 A, LT=4  ments: Lifetime Position 4: -3.0 arc Aperture Lif NONE etime Positi on 1 ments: Move back to aperture locate G160M/157 (2) WD1057+719	cosition prior to obtaining an exp COS/FUV, TIME-TAG, PSA csec COS, ALIGN/APER	G160M	BUFFER-TIME=15 0; FP-POS=3; FLASH=S0130D01 2  XAPER=0; YAPER=0  BUFFER-TIME=15 0;	POS TARG 0.0,-3.0; SPEC COM INSTR ELNOAPMAIN		[1]

