



# 12934 - The importance of warm outflows in the most rapidly evolving galaxies in the local Universe

Cycle: 20, 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) F13428+5608	ACS/WFC	1	09-Mar-2013 02:24:48.0	yes
02	(2) F13443+082	ACS/WFC	1	09-Mar-2013 02:24:57.0	yes
03	(3) F14394+5332	ACS/WFC	1	09-Mar-2013 02:25:04.0	yes
04	(4) F15130-1958	ACS/WFC	1	09-Mar-2013 02:25:11.0	yes
05	(5) F16156+0146	ACS/WFC	1	09-Mar-2013 02:25:17.0	yes
06	(9) F17044+6720	ACS/WFC	1	09-Mar-2013 02:25:25.0	yes

<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>
07	(7) F17179+5444	ACS/WFC	1	09-Mar-2013 02:25:32.0	yes
09	(17) F13428+5608-OFFSET (18) F13428+5608-C	STIS/CCD	1	09-Mar-2013 02:25:39.0	yes
10	(21) F13443+082-OFFSET (22) F13443+082-1 (23) F13433+082-2 (24) F13443+082-3 CCDFLAT	STIS/CCD	3	09-Mar-2013 02:25:56.0	yes
11	(12) F14394+5332-OFFSET (13) F14394+5332-C (14) F14394+5332-E (15) F14394+5332-W CCDFLAT	STIS/CCD	3	09-Mar-2013 02:26:15.0	yes
13	(19) F16156+0146-OFFSET (20) F16156+0146-C CCDFLAT	STIS/CCD	1	09-Mar-2013 02:26:27.0	yes

15 Total Orbits Used

### **ABSTRACT**

Although there is increasing speculation that the evolution of galaxy bulges may be regulated by AGN-induced outflows associated with the growth of the central supermassive black holes, the importance of AGN-induced outflows relative to those driven by starbursts has yet to be established observationally. Therefore we propose to use the unique capabilities of ACS/WFC and STIS on board HST to measure the spatial scales, structures and velocity gradients of the emission line outflows in a complete sample of nearby ULIRGs with optically-detected AGN. Combined with information derived from existing ground-based spectra, the HST data will be used to quantify the mass outflow rates and kinetic powers of the warm outflows for the first time in a significant sample of nearby ULIRGs.

In this way we will establish whether the warm, AGN-driven outflows are energetically important and a major factor in the evolution of the host galaxies. Given that the ULIRGs represent low redshift analogues of the rapidly evolving galaxies now routinely detected in surveys of the distant Universe, the results will be important for our understanding of the co-evolution of supermassive black holes and their host galaxies at all redshifts. Only the HST is capable of the high spatial resolution required for this project at optical wavelengths.

### **OBSERVING DESCRIPTION**

This project has two parts: imaging the near-nuclear emission line regions of nearby ULIRGs with Seyfert nuclei using ACS/WFC, and long-slit spectroscopy of the same targets using STIS to determine the spatially resolved emission line kinematics. \*Note that the ACS imaging observations must be executed as early as possible in Cycle 20 because they are required to measure the slit position angles for the subsequent STIS long-slit spectroscopy observations.\*

The imaging part of this project will be done with ACS/WFC instrument, which is the only instrument on board HST that has the narrow-band filters required for sensitive emission line imaging observations, with minimum continuum contamination. This instrument is capable of resolving structures on the  $\sim 0.1 - 0.5$  arcsecond scale that we expect to be typical of the quasar-driven outflows in the target objects. In addition, we also expect to be able to use this instrument to determine the spatial offset between the emission line and continuum structures to an accuracy of much better than a pixel ( $< 0.01$  arcsec).

In estimating the required exposure times we make the conservative assumption that the outflow regions (emitting the blueshifted [OIII]) cover an area of 0.25 sq.arcsec. With this assumption, and using the [OIII]5007,4959 fluxes from our ground-based data, the typical [OIII] surface brightness in the outflow regions in the faintest sources in our sample are  $5 \times 10^{-14}$  erg  $\text{cm}^{-2}$   $\text{s}^{-1}$   $\text{arcsec}^{-2}$ . We will use full frame readout to mitigate the effects of CTE and aid the reduction of the data in the pipeline (using pixel-based CTE correction and bias stripe removal, which only work for full frame readout) and, in order to achieve the best possible image quality, we will use a standard three or four point box dither pattern for the emission line observations (N.B. the number of dither positions depends on the latitude of the source and how the exposures fit into the orbits). The total exposure time will be 1290 -

## Proposal 12934 (STScI Edit Number: 6, Created: Friday, March 8, 2013 9:26:35 PM EST) - Overview

1440s (depending on declination) for the [OIII] observations of each object. We will use the FR551N or FR505N ramp filter (depending on redshift) for the [OIII] observations. Using the ACS ETC we estimate that we will achieve  $S/N > 30$  per resolution element in a total exposure time of  $\sim 1300$ s (assuming 4 separate dithered exposures). This is entirely adequate for the science goals of our project. The  $S/N$  could be considerably greater than this if the outflow region is smaller than we have assumed.

The continuum will make a negligible contribution to the noise in the continuum-subtracted emission line images, but, for an accurate structural analysis, it will be important to subtract a continuum image, since we estimate that the continuum will contribute up to 10 -- 30% of the total flux in each pixel. Continuum observations are also important for deriving the accurate positions of the continuum nuclei, and relating the emission line structures to the dust and stellar continuum structures in the nuclear regions. Based on the mean surface brightness of the continuum in the near-nuclear regions deduced from our ground-based spectra ( $5 \times 10^{-17}$  erg  $\text{cm}^{-2}$   $\text{s}^{-1}$   $\text{\AA}^{-1}$   $\text{arcsec}^{-2}$ ), we will obtain  $S/N > 15$  per resolution element for all our targets with a total exposure time of  $\sim 700$ s using the FR647M or F550M filter (depending on redshift) at a typical central wavelengths of 5500 - 6200 $\text{\AA}$ . This is entirely adequate for the purposes of continuum subtraction. For these observations a standard 2 point dither will be used to fit the exposures in the orbits

For the STIS spectroscopic observations we will use the F750L or F430L grism (depending on redshift) to target the [OIII]5007,4959 emission lines with a 0.1 arcsec slit. This will give a spectral resolution of  $\sim 8\text{\AA}$  --- adequate to measure the kinematics of the emission line outflow components, which have typical line widths (FWHM) and velocity shifts of  $\sim 10\text{\AA}$ , (our previous experience with STIS observations shows that it will be possible to centroid the emission lines to an accuracy of better than  $2\text{\AA}$ , with this setup). Using the STIS ETC we find that we will achieve our target  $S/N (> 10$ , per spectral resolution element) in a total exposure time of 1200s (1 orbit including peakup and all other overheads), for a typical surface brightness in emission line outflow components of  $5 \times 10^{-14}$  erg  $\text{cm}^{-2}$   $\text{s}^{-1}$   $\text{arcsec}^{-2}$ . Note that, although our observations are primarily aimed at the [OIII] emission lines, we will also obtain useful spatially-resolved information on the H $\alpha$  and [NII]6584,6548 emission lines.

We will place the targets in the  $52 \times 0.1 \text{E1}$  aperture to help mitigate the CTE effects, and will use a 2 point sub-pixel dither of  $\sim 1.5$  arcseconds along the slit (4 exposures in total including CR splits) to help remove hot pixels and improve spatial resolution. We will also include flat field observations to help remove fringing in the red.

The slits for the spectroscopic observations will be oriented along specific PAs (with typical tolerance  $\pm 5$  degrees) designed to coincide with the structural axis of the main emission line regions, as determined from the ACS imaging observations. Therefore the STIS observations must be scheduled *after* the ACS observations.

Following analysis of the ACS observations  
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Although it was originally intended to spend 1 orbit on each of 8 objects for the spectroscopic observations, following the ACS observations, it was decided to concentrate the spectroscopic effort on the 4 targets identified from the ACS observations to have extended structures in the near-nuclear regions with sufficiently high surface brightness to be readily measured with STIS. The change in the program has been approved by the TTRB. For the STIS observations, 2 objects will be observed for 3 orbits each (F13443+082, F14394+5332) with three parallel slit positions, and 2 objects will be observed for 1 orbit each (F13428+5608, F16156+0146) with one slit position.

The ACS imaging observations also showed that the nuclear regions of the targets are too complex to allow direct target acquisition and slit pickup. Therefore it will be necessary to do the initial target acquisition and pickup on nearby stars (or in the case of F14394+5332 the compact nucleus of a nearby galaxy), then offset to the nuclear regions of the targets. The accurate positional offsets and ORIENTs have been determined directly from our ACS images.

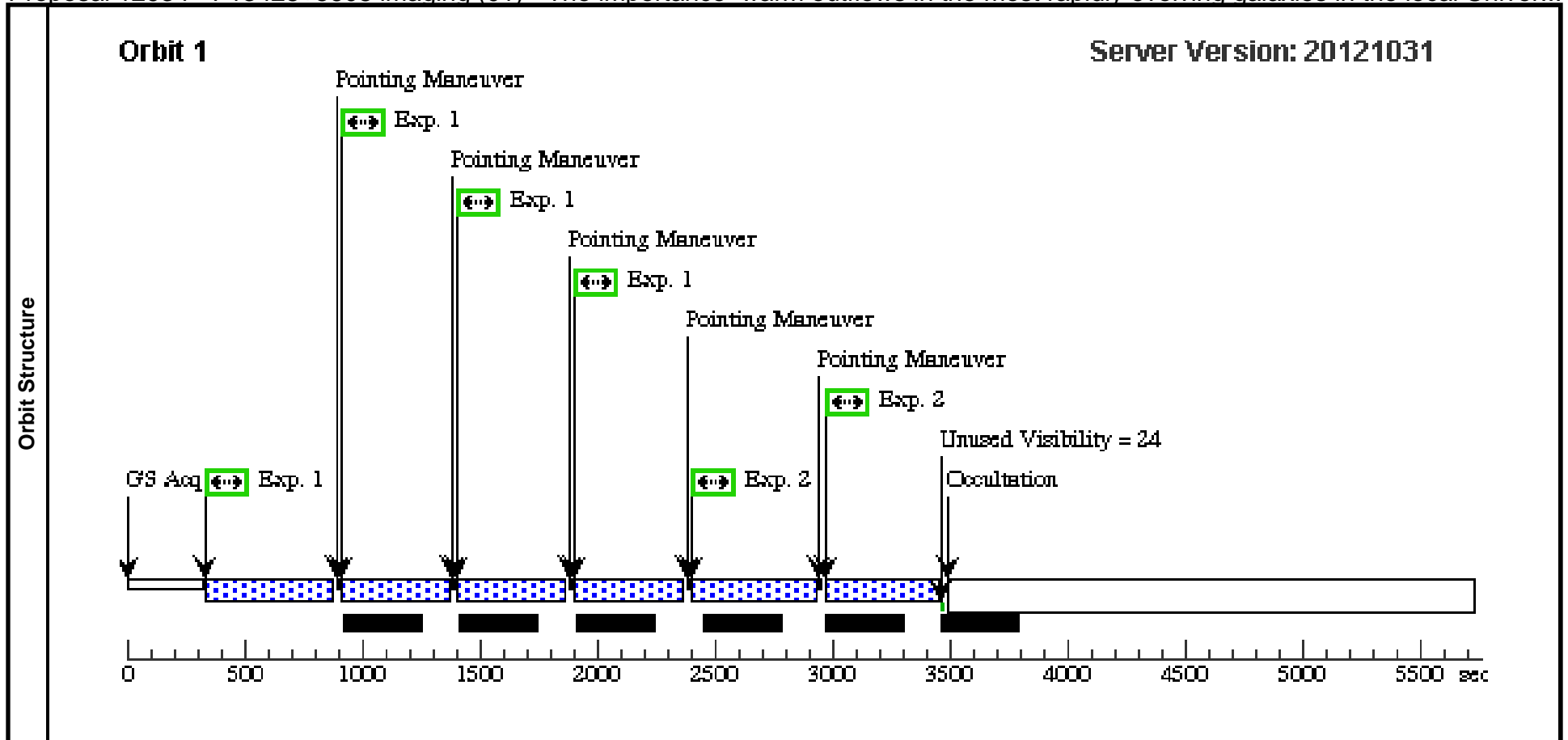
#### **REAL TIME JUSTIFICATION**

It is essential that ACS/WFC imaging observations are completed as early as possible in the cycle, because they are required to determine the slit position angles for the subsequent STIS spectroscopic observations.

Proposal 12934 - F13428+5608 imaging (01) - The importance warm outflows in the most rapidly evolving galaxies in the local Univer...

Sat Mar 09 02:26:35 GMT 2013

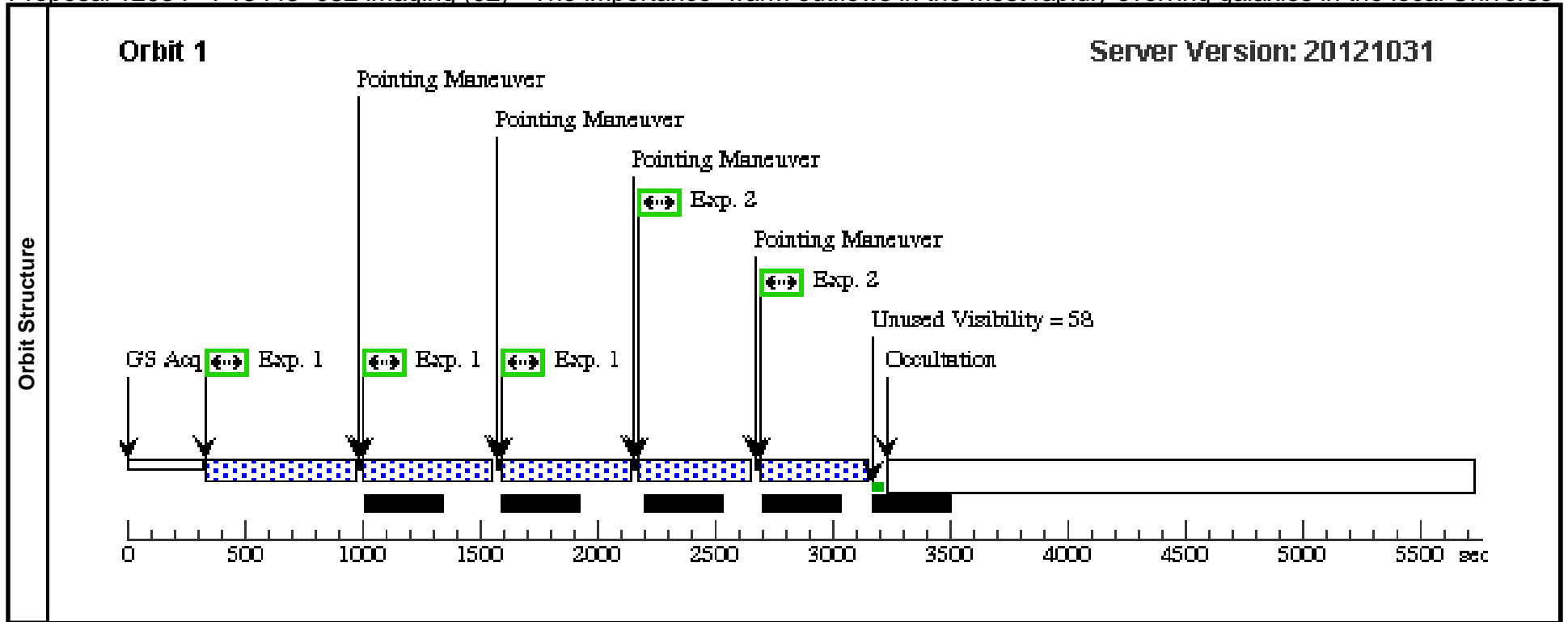
<b>Visit</b>	<b>Proposal 12934, F13428+5608 imaging (01), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 01-FEB-2013 <i>Comments: [OIII] and continuum imaging for F13428+5608. Must be done early in the cycle before the spectroscopy observations for this object.</i>									
	(Exposure 1 (Pattern 3, Exps 1-1 in F13428+5608 imaging (01))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.									
<b>Diagnos</b>										
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>						
	(3)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
<b>Patterns</b>	(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(2)					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(1)	F13428+5608	RA: 13 44 42.1600 (206.1756667d) Dec: +55 53 13.57 (55.88710d) Equinox: J2000		V=14.5+/-0.1 z=0.037	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(1) F13428+5608	(1) F13428+5608	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5176 A			Pattern 3, Exps 1-1 in F13428+5608 imaging (01) (3)	339 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
<b>Exposures</b>	2	(1) F13428+5608	(1) F13428+5608	ACS/WFC, ACCUM, WFC1-MRAMP	F550M			Pattern 5, Exps 2-2 in F13428+5608 imaging (01) (5)	358 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 12934 - F13443+082 imaging (02) - The importance warm outflows in the most rapidly evolving galaxies in the local Universe

Sat Mar 09 02:26:37 GMT 2013

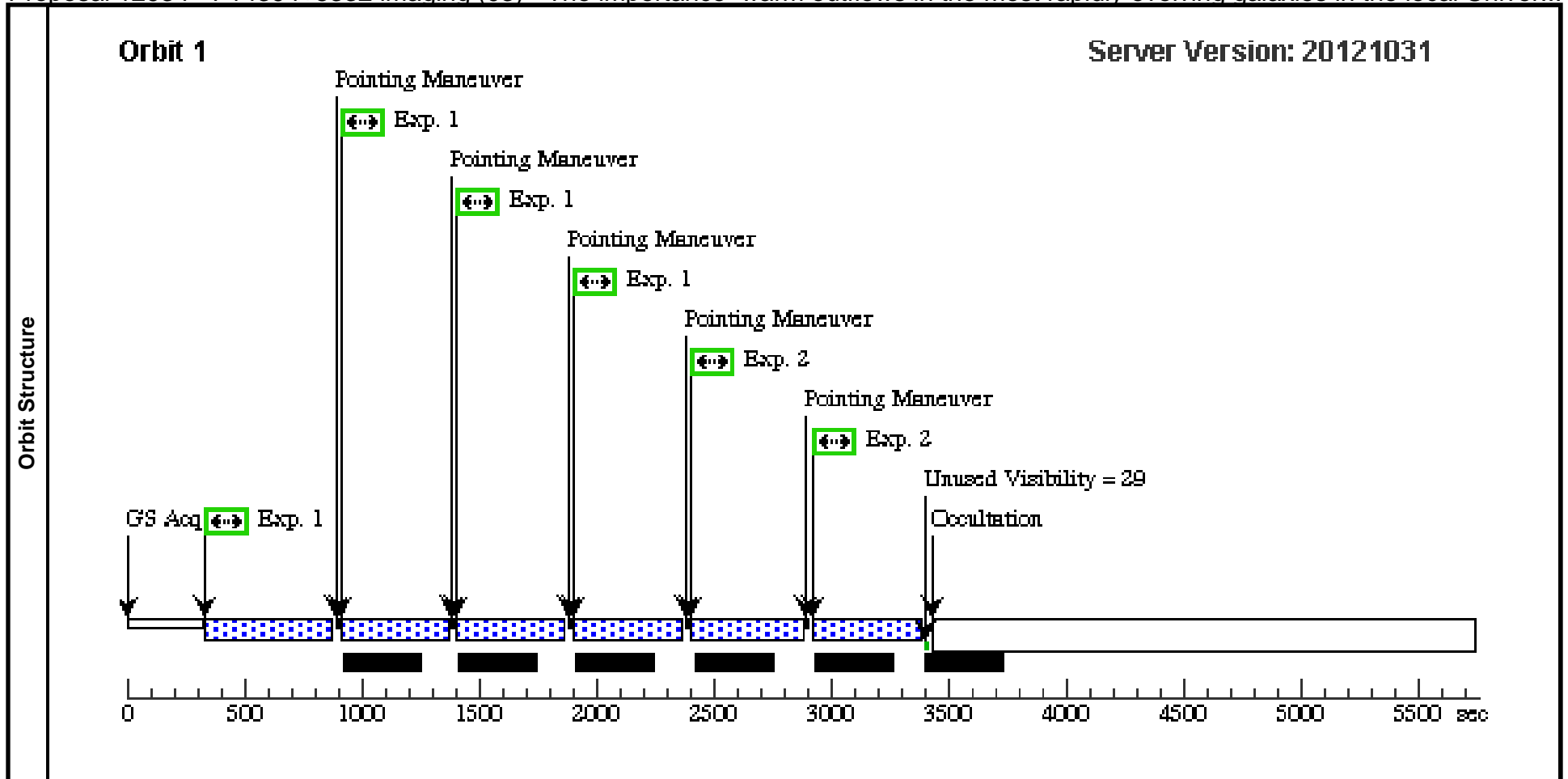
<b>Visit</b>	<b>Proposal 12934, F13443+082 imaging (02), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 01-FEB-2013 <i>Comments: [OIII] and continuum imaging for F13443+082. Must be done early in the cycle before the spectroscopy observations for this object.</i>									
	<b>Diagnostics</b>	(Exposure 1 (Pattern 4, Exps 1-1 in F13443+082 imaging (02))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures. (Exposure 2 (Pattern 5, Exps 2-2 in F13443+082 imaging (02))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.								
<b>Patterns</b>		<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>
	(4)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.170 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=false				(1)			
(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false				(2)				
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>			
	(2)	F13443+082	RA: 13 46 50.3500 (206.7097917d) Dec: +07 47 8.20 (7.78561d) Equinox: J2000			V=17.4+/-0.2 z=0.135	Reference Frame: ICRS			
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(2) F13443+082	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5665 A				Pattern 4, Exps 1-1 in F13443+082 imaging (02) (4)	430 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	(2) F13443+082	ACS/WFC, ACCUM, WFC1-IRAMP	FR647M 6131 A				Pattern 5, Exps 2-2 in F13443+082 imaging (02) (5)	339 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 12934 - F14394+5332 imaging (03) - The importance warm outflows in the most rapidly evolving galaxies in the local Univer...

Sat Mar 09 02:26:39 GMT 2013

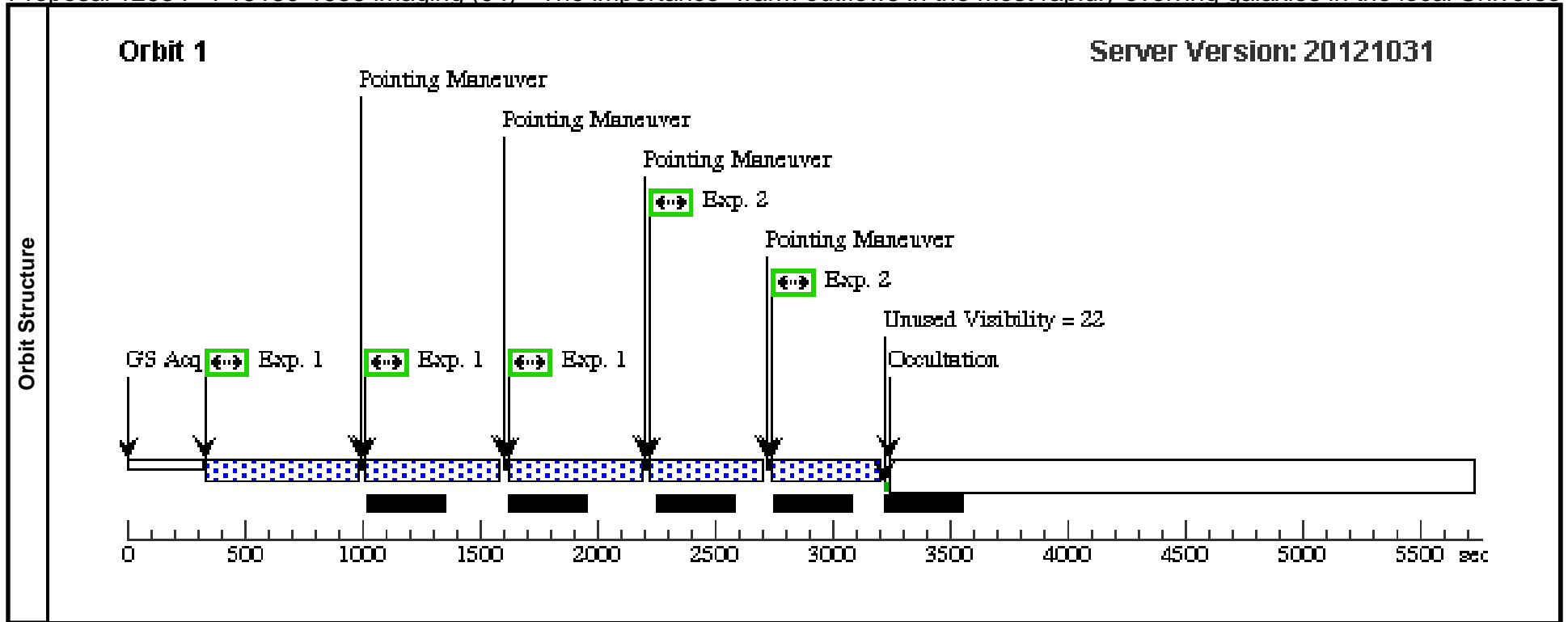
<b>Visit</b>	<b>Proposal 12934, F14394+5332 imaging (03), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 01-FEB-2013 <i>Comments: [OIII] and continuum imaging for F14394+5332. Must be done early in the cycle before the spectroscopy observations for this object.</i>									
	(Exposure 1 (Pattern 3, Exps 1-1 in F14394+5332 imaging (03))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures. (Exposure 2 (Pattern 5, Exps 2-2 in F14394+5332 imaging (03))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.									
<b>Diagnosics</b>										
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>						
	(3)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(2)						
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(3)	F14394+5332	RA: 14 41 4.3700 (220.2682083d) Dec: +53 20 8.67 (53.33574d) Equinox: J2000		V=16.4+/-0.2 z=0.105	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(3) F14394+5332		ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5510 A			Pattern 3, Exps 1-1 in F14394+5332 imaging (03) (3)	339 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	(3) F14394+5332		ACS/WFC, ACCUM, WFC1-IRAMP	FR647M 5964 A			Pattern 5, Exps 2-2 in F14394+5332 imaging (03) (5)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 12934 - F15130-1958 imaging (04) - The importance warm outflows in the most rapidly evolving galaxies in the local Universe

Sat Mar 09 02:26:40 GMT 2013

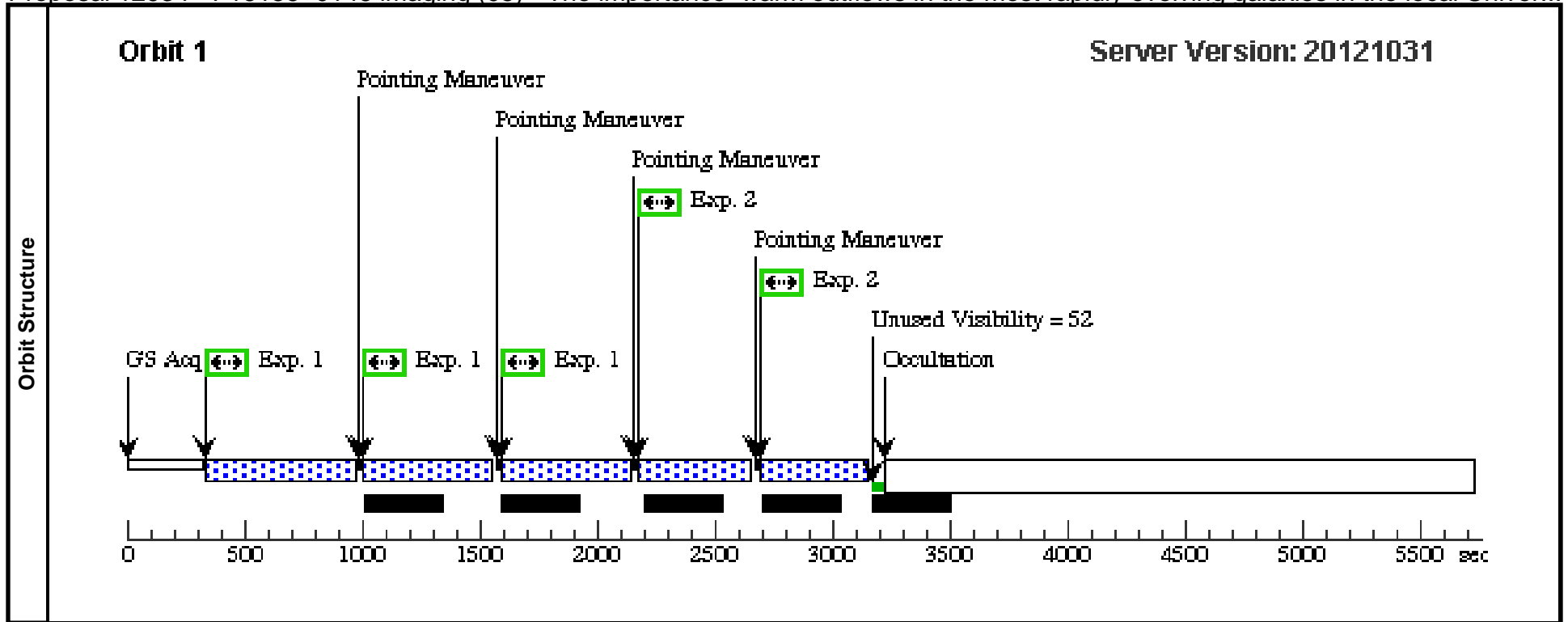
<b>Visit</b>	<b>Proposal 12934, F15130-1958 imaging (04), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 15-FEB-2013 <i>Comments: [OIII] and continuum imaging for F15130-1958. Must be done early in the cycle before the spectroscopy observations for this object.</i>									
	(Exposure 1 (Pattern 4, Exps 1-1 in F15130-1958 imaging (04))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures. (Exposure 2 (Pattern 5, Exps 2-2 in F15130-1958 imaging (04))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.									
<b>Diagnosics</b>										
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>						
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(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(2)						
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(4)	F15130-1958	RA: 15 15 55.1600 (228.9798333d) Dec: -20 09 17.00 (-20.15472d) Equinox: J2000		V=17.9+/-0.2 z=0.109	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(4) F15130-1958	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5531 A				Pattern 4, Exps 1-1 in F15130-1958 imaging (04) (4)	445 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	(4) F15130-1958	ACS/WFC, ACCUM, WFC1-IRAMP	FR647M 5987 A				Pattern 5, Exps 2-2 in F15130-1958 imaging (04) (5)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 12934 - F16156+0146 imaging (05) - The importance warm outflows in the most rapidly evolving galaxies in the local Univer...

Sat Mar 09 02:26:41 GMT 2013

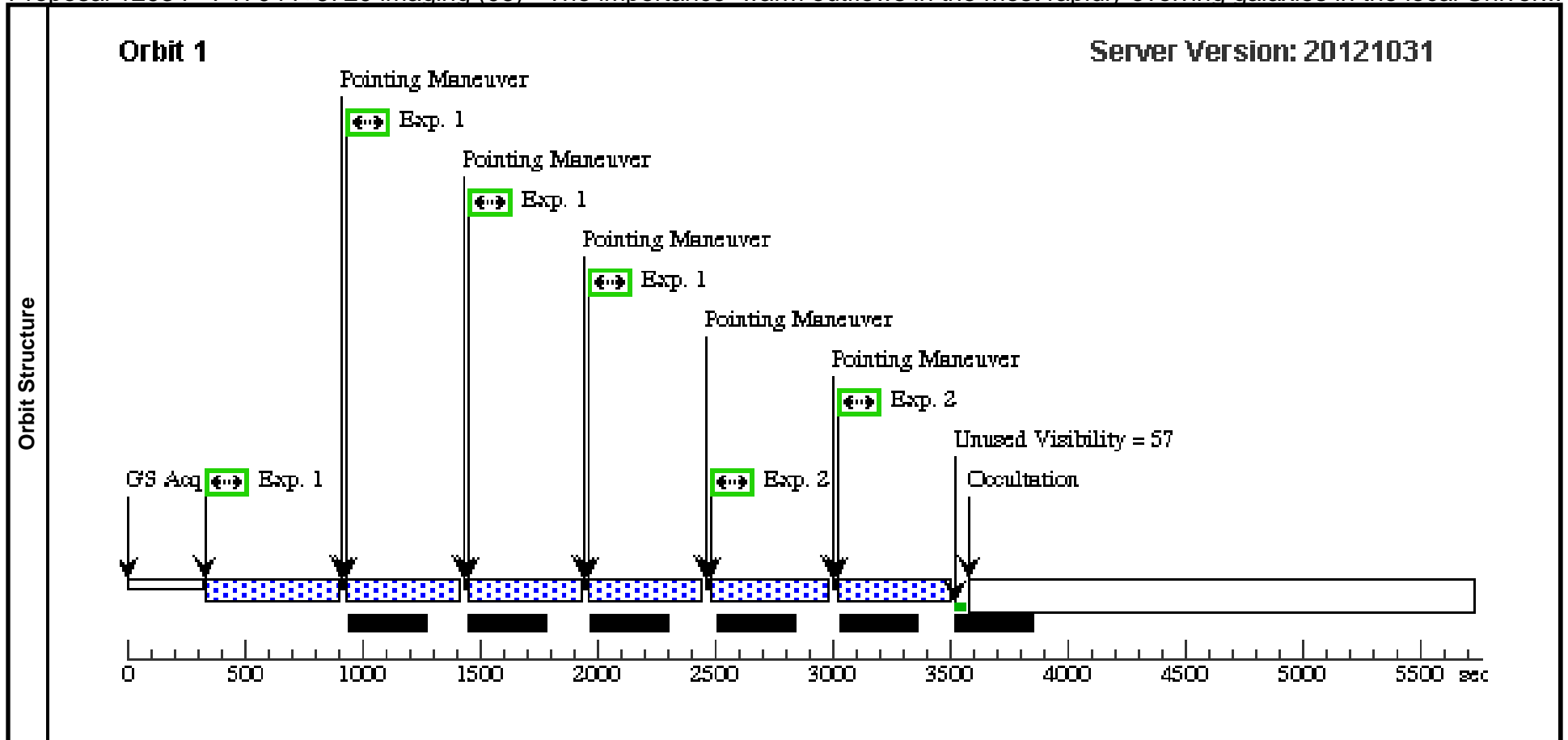
<b>Visit</b>	<b>Proposal 12934, F16156+0146 imaging (05), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 15-FEB-2013 <i>Comments: [OIII] and continuum imaging for F16156+0146. Must be done early in the cycle before the spectroscopy observations for this object.</i>									
	(Exposure 1 (Pattern 4, Exps 1-1 in F16156+0146 imaging (05))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures. (Exposure 2 (Pattern 5, Exps 2-2 in F16156+0146 imaging (05))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.									
<b>Diagnosics</b>										
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>						
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(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(2)						
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(5)	F16156+0146	RA: 16 18 9.3000 (244.5387500d) Dec: +01 39 21.90 (1.65608d) Equinox: J2000		V=18.3+/-0.2 z=0.132	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(5) F16156+0146		ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5648 A			Pattern 4, Exps 1-1 in F16156+0146 imaging (05) (4)	430 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	(5) F16156+0146		ACS/WFC, ACCUM, WFC1-IRAMP	FR647M 6113 A			Pattern 5, Exps 2-2 in F16156+0146 imaging (05) (5)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 12934 - F17044+6720 imaging (06) - The importance warm outflows in the most rapidly evolving galaxies in the local Univer...

Sat Mar 09 02:26:42 GMT 2013

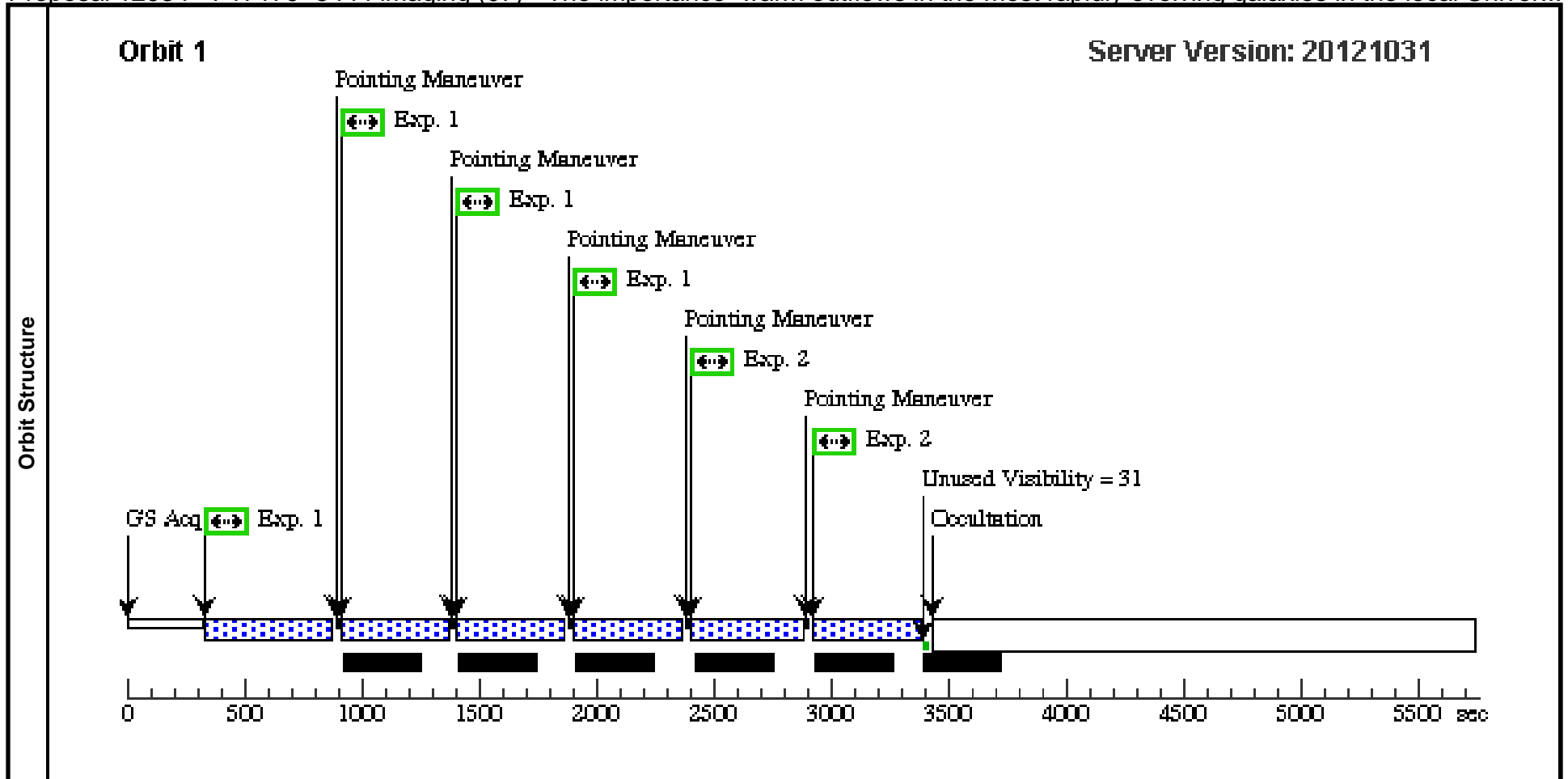
<b>Visit</b>	<b>Proposal 12934, F17044+6720 imaging (06), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 01-FEB-2013 <i>Comments: [OIII] and continuum imaging for F17044+6720. Must be done early in the cycle before the spectroscopy observations for this object.</i>									
	(Exposure 1 (Pattern 3, Exps 1-1 in F17044+6720 imaging (06))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures. (Exposure 2 (Pattern 5, Exps 2-2 in F17044+6720 imaging (06))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.									
<b>Diagnosics</b>										
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>						
	(3)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(2)						
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(9)	F17044+6720	RA: 17 04 28.4600 (256.1185833d) Dec: +67 16 28.41 (67.27456d) Equinox: J2000		V=16.1+/-0.2 z=0.135	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(9) F17044+6720	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5663 A				Pattern 3, Exps 1-1 in F17044+6720 imaging (06) (3)	360 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	(9) F17044+6720	ACS/WFC, ACCUM, WFC1-IRAMP	FR647M 6129 A				Pattern 5, Exps 2-2 in F17044+6720 imaging (06) (5)	360 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 12934 - F17179+5444 imaging (07) - The importance warm outflows in the most rapidly evolving galaxies in the local Univer...

Sat Mar 09 02:26:43 GMT 2013

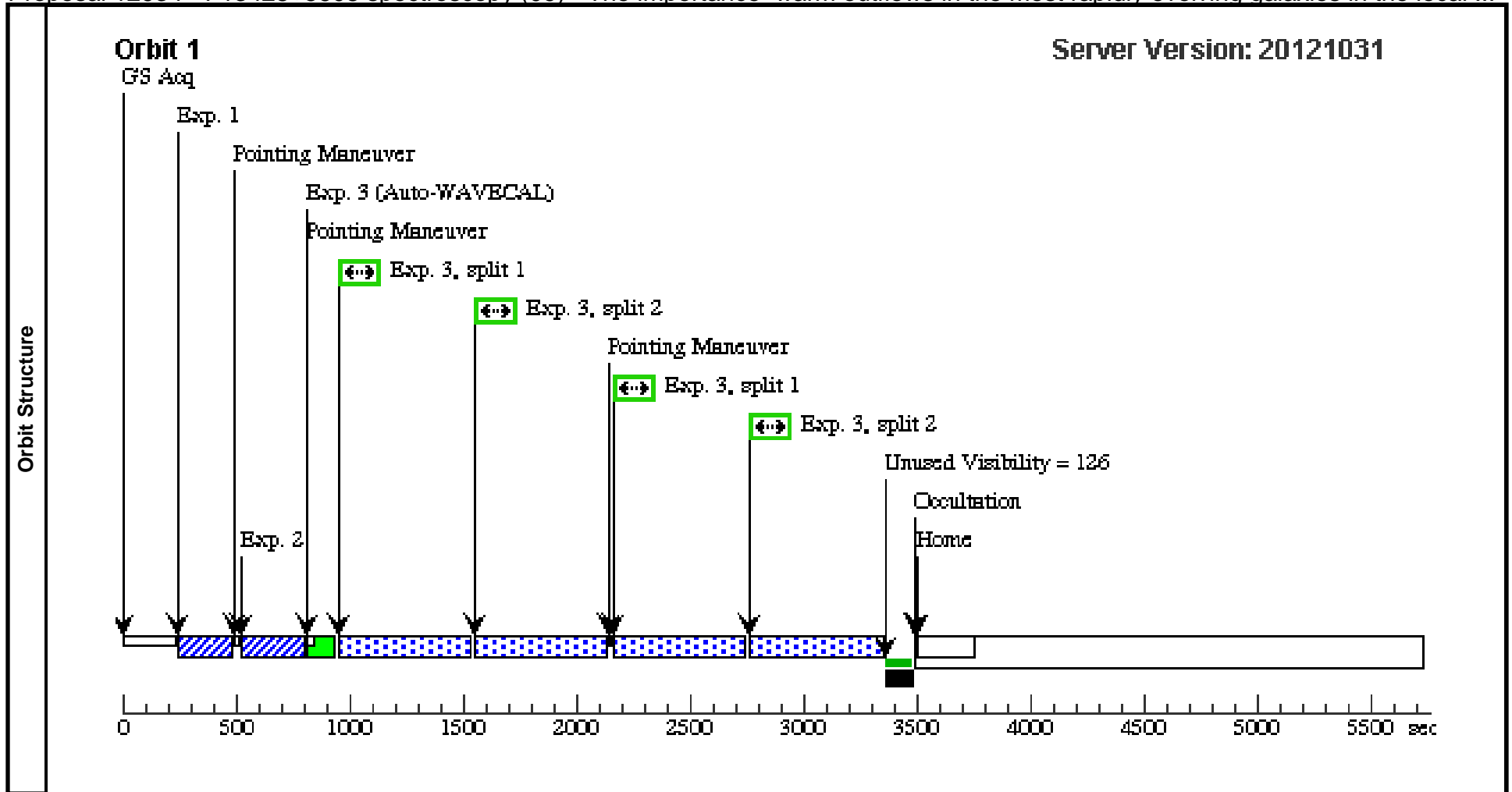
<b>Visit</b>	<b>Proposal 12934, F17179+5444 imaging (07), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: ACS/WFC Special Requirements: PCS MODE FINE; BEFORE 01-FEB-2013 <i>Comments: [OIII] and continuum imaging for F17179+5444</i>									
	(Exposure 1 (Pattern 3, Exps 1-1 in F17179+5444 imaging (07))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures. (Exposure 2 (Pattern 5, Exps 2-2 in F17179+5444 imaging (07))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp or WFC3 quad filters as central wavelengths & transmission efficiencies vary within the apertures.									
<b>Diagnosics</b>										
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>						
	(3)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
(5)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(2)						
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(7)	F17179+5444	RA: 17 18 54.3800 (259.7265833d) Dec: +54 41 47.90 (54.69664d) Equinox: J2000		V=17.1+/-0.2 z=0.147	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(7) F17179+5444	(7) F17179+5444	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5723 A			Pattern 3, Exps 1-1 in F17179+5444 imaging (07) (3)	339 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	(7) F17179+5444	(7) F17179+5444	ACS/WFC, ACCUM, WFC1-IRAMP	FR647M 6194 A			Pattern 5, Exps 2-2 in F17179+5444 imaging (07) (5)	339 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]	



Proposal 12934 - F13428+5608 spectroscopy (09) - The importance warm outflows in the most rapidly evolving galaxies in the local ...

Sat Mar 09 02:26:44 GMT 2013

<b>Visit</b>	<b>Proposal 12934, F13428+5608 spectroscopy (09), implementation</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/CCD Special Requirements: ORIENT 110D TO 114 D; ORIENT 290D TO 294 D <i>Comments: Long-slit spectroscopy of the nuclear regions of F13428+5608. The target acquisition and slit pickup will be done on a nearby star, and the slit will then be offset to a nucleus of the target galaxy. The ORIENT and offset have been determined from the ACS images taken earlier in the program.</i>									
	(F13428+5608 spectroscopy (09)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET									
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>		<b>Secondary Pattern</b>	<b>Exposures</b>					
	(2)	Pattern Type=STIS-ALONG-SLIT Purpose=DITHER Number Of Points=2 Point Spacing=1.5484 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=90.0 Angle Between Sides= Center Pattern=false		(3)					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(17)	F13428+5608-OFFSET	RA: 13 44 44.7030 (206.1862625d) Dec: +55 53 38.70 (55.89408d) Equinox: J2000		V=16.0+/-0.1	Reference Frame: ICRS				
	<i>Comments: This is the offset star for F13428+5606.</i>									
(18)	F13428+5608-C	Offset from F13428+5608-OFFSET RA Offset: -2.512 Secs Dec Offset: -25.65 Arcsec			V=14.5+/-0.1	Offset Position (F13428+5608-C)				
<i>Comments: This is the main slit position for F13428+5608.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F13428+5608 spectroscopic acquisition	(17) F13428+5608-O	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO SINGLE		3 Secs [==>]	[1]
	2	F13428+5608 spectroscopic pickup	(17) F13428+5608-O	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				5 Secs [==>]	[1]
	3	F13428+5608 spectroscopy	(18) F13428+5608-C	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				Pattern 2, Exps 3-3 in F13428+5608 spectroscopy (09) (2) 1100 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]



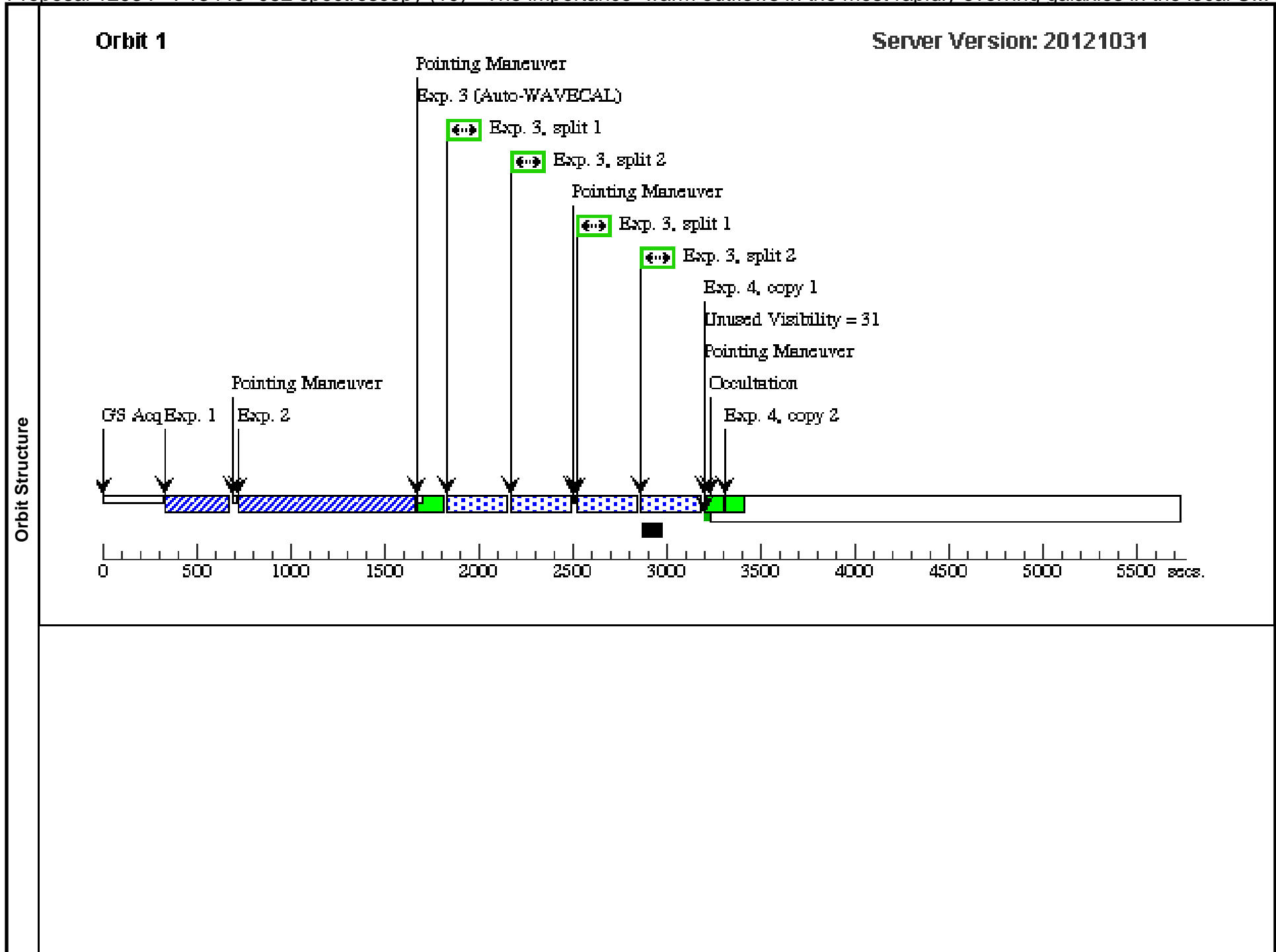
Proposal 12934 - F13443+082 spectroscopy (10) - The importance warm outflows in the most rapidly evolving galaxies in the local U...

Sat Mar 09 02:26:45 GMT 2013

<b>Visit</b>	<b>Proposal 12934, F13443+082 spectroscopy (10), implementation</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/CCD Special Requirements: ORIENT 120D TO 120 D; ORIENT 300D TO 300 D <i>Comments: Long-slit spectroscopy of the nuclear regions of F13443+082. The target acquisition and slit pickup will be done on a nearby star, and the slit will then be offset to three parallel slit positions to map the emission line kinematics in the near-nuclear regions. The slit position angle and offsets have been determined from the ACS images taken earlier in the program.</i>					
	(F13443+082 spectroscopy (10)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET (F13443+082 spectroscopy (10)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET (F13443+082 spectroscopy (10)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET					
<b>Diagnosics</b>						
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>		
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                      Angle Between Sides= Point Spacing=1.5484                      Center Pattern=false Line Spacing=		(3), (5), (7)		
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>
	(21)	F13443+082-OFFSET	RA: 13 46 49.1070 (206.7046125d) Dec: +07 47 6.62 (7.78517d) Equinox: J2000 <i>Comments: This is the offset star for F13443+082.</i>		V=20.0+/-0.1 R=19.1	Reference Frame: ICRS
	(22)	F13443+082-1	Offset from F13443+082-OFFSET RA Offset: 2.042 Secs Dec Offset: 7.57 Arcsec <i>Comments: Most southerly slit position for F13443+082.</i>		V=17.4+/-0.1	Offset Position (F13443+082-1)
	(23)	F13433+082-2	Offset from F13443+082-OFFSET RA Offset: 2.041 Secs Dec Offset: 7.64 Arcsec <i>Comments: Middle slit position for F13443+082.</i>		V=17.4+/-0.1	Offset Position (F13433+082-2)
	(24)	F13443+082-3	Offset from F13443+082-OFFSET RA Offset: 2.03 Secs Dec Offset: 7.79 Arcsec <i>Comments: The most northerly slit position for F13443+082.</i>		V=17.4+/-0.1	Offset Position (F13443+082-3)

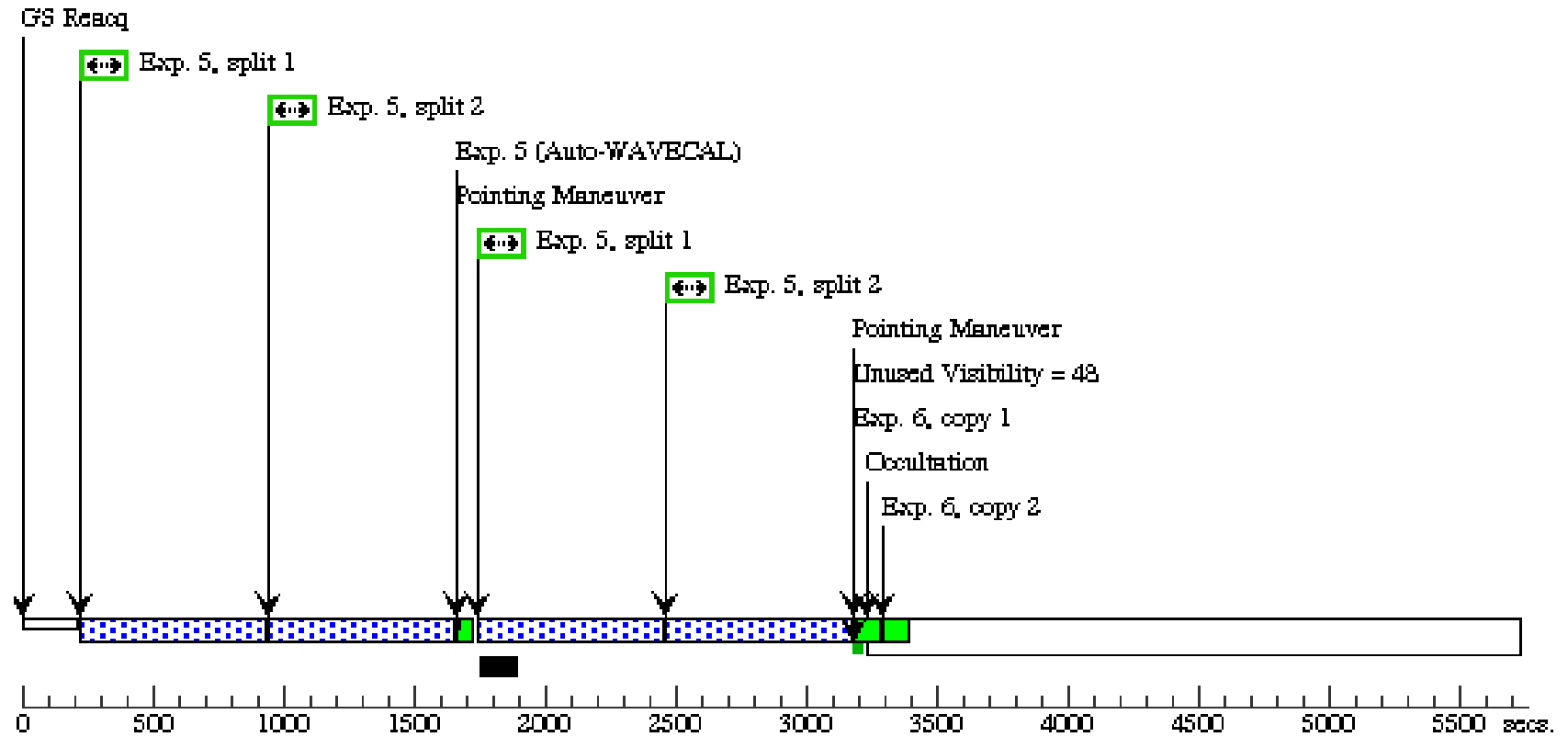
Proposal 12934 - F13443+082 spectroscopy (10) - The importance warm outflows in the most rapidly evolving galaxies in the local U...

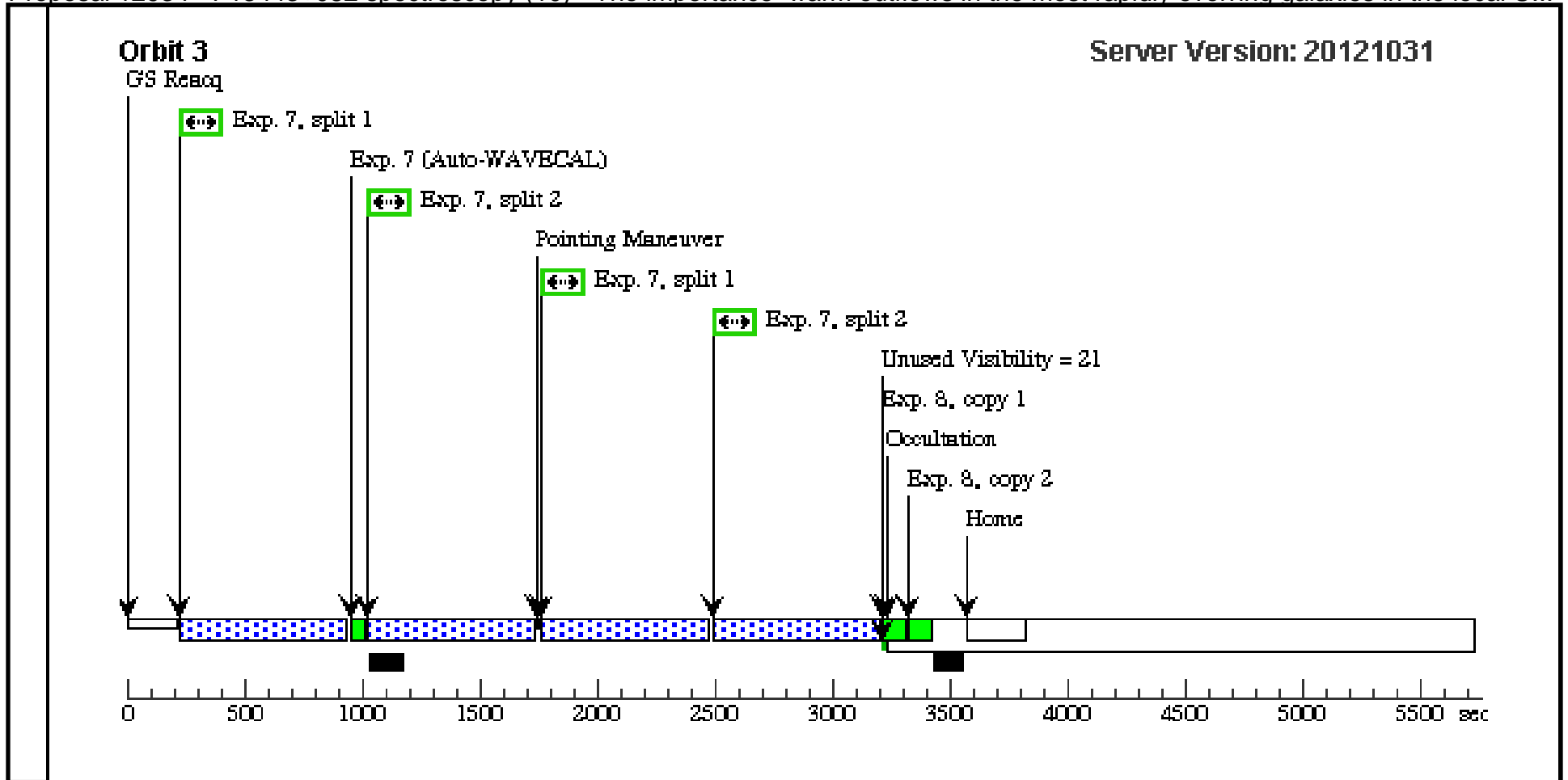
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F13443+082 spectroscopic acquisition	(21) F13443+082-O FFSET	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3		30 Secs [==>]	[1]
	2	F13443+082 spectroscopic pickup	(21) F13443+082-O FFSET	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				60 Secs [==>]	[1]
	3	F13443+082 spectroscopy	(24) F13443+082-3	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A			Pattern 2, Exps 3-3 in F13443+082 spectroscopy (10) (2)	580 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]
	4		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]
	5	F13443+082 spectroscopy	(22) F13443+082-1	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A			Pattern 2, Exps 5-5 in F13443+082 spectroscopy (10) (2)	1350 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[2]
	6		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[2]
	7	F13443+082 spectroscopy	(23) F13433+082-2	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A			Pattern 2, Exps 7-7 in F13443+082 spectroscopy (10) (2)	1350 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[3]
	8		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[3]



**Orbit 2**

Server Version: 20121031





<b>Visit</b>	<p><b>Proposal 12934, F14394+5332 spectroscopy (11), implementation</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: STIS/CCD</p> <p>Special Requirements: ORIENT 37D TO 37 D; ORIENT 217D TO 217 D</p> <p><i>Comments: Long-slit spectroscopy of the nuclear regions of F14394+5332. The target acquisition will be done on the compact nucleus of a companion galaxy, then offsets will be made to three parallel slit positions to map the emission line kinematics across the nucleus regions. Note that, because of the faintness of the companion galaxy nucleus (and any stars close enough for offsets in the field), it is not possible to do a peakup of the slit. However, the normal spectroscopic acquisition should be adequate, even with the 0.1 arcsec slit, given that our mapping of the nuclear regions using three parallel slits will mitigate the effects of any small positional errors (up to ~0.05 arcsec). The positional offsets and ORIENT have been determined directly from the ACS images taken in the first part of the program.</i></p>			
	<b>Diagnostics</b>	<p>(F14394+5332 spectroscopy (11)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET</p> <p>(F14394+5332 spectroscopy (11)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET</p> <p>(F14394+5332 spectroscopy (11)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET</p>		
<b>Patterns</b>		<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>
	(2)	<p>Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG</p> <p>Purpose=DITHER                      Pattern Orientation=90.0</p> <p>Number Of Points=2                  Angle Between Sides=</p> <p>Point Spacing=1.5484                Center Pattern=false</p> <p>Line Spacing=</p>		(2), (4), (6)

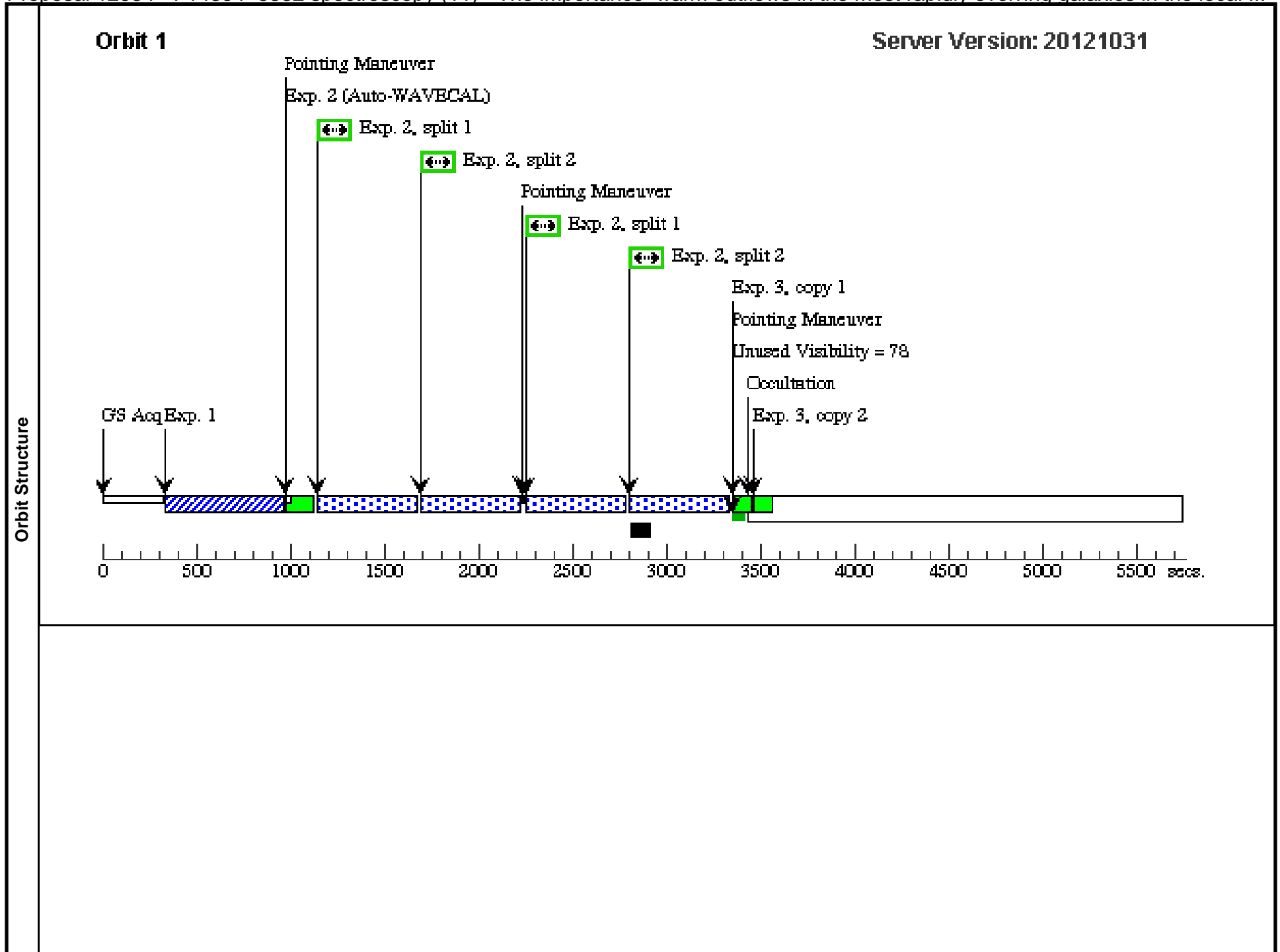
Proposal 12934 - F14394+5332 spectroscopy (11) - The importance warm outflows in the most rapidly evolving galaxies in the local ...

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	F14394+5332-OFFSET	RA: 14 41 1.2190 (220.2550792d) Dec: +53 20 11.02 (53.33639d) Equinox: J2000		V=21.2+/-0.1 R=20.0	Reference Frame: ICRS
<i>Comments: This is the compact nucleus of the companion galaxy to be used to acquire the slit and then offset to F14394+5332.</i>					
(13)	F14394+5332-C	Offset from F14394+5332-OFFSET RA Offset: 3.165 Secs Dec Offset: -1.49 Arcsec		V=16.4+/-0.1	Offset Position (F14394+5332-C)
<i>Comments: This is the central slit position for the long-slit observations of F14394+5332.</i>					
(14)	F14394+5332-E	Offset from F14394+5332-OFFSET RA Offset: 3.176 Secs Dec Offset: -1.48 Arcsec		V=16.4+/-0.1	Offset Position (F14394+5332-E)
<i>Comments: This is the eastern slit position for the long-slit observations of F14394+5332.</i>					
(15)	F14394+5332-W	Offset from F14394+5332-OFFSET RA Offset: 3.154 Secs Dec Offset: -1.51 Arcsec		V=21.2+/-0.1 R=20.31	Offset Position (F14394+5332-W)
<i>Comments: This is the western slit position for the long-slit observations of F14394+5332.</i>					

Fixed Targets

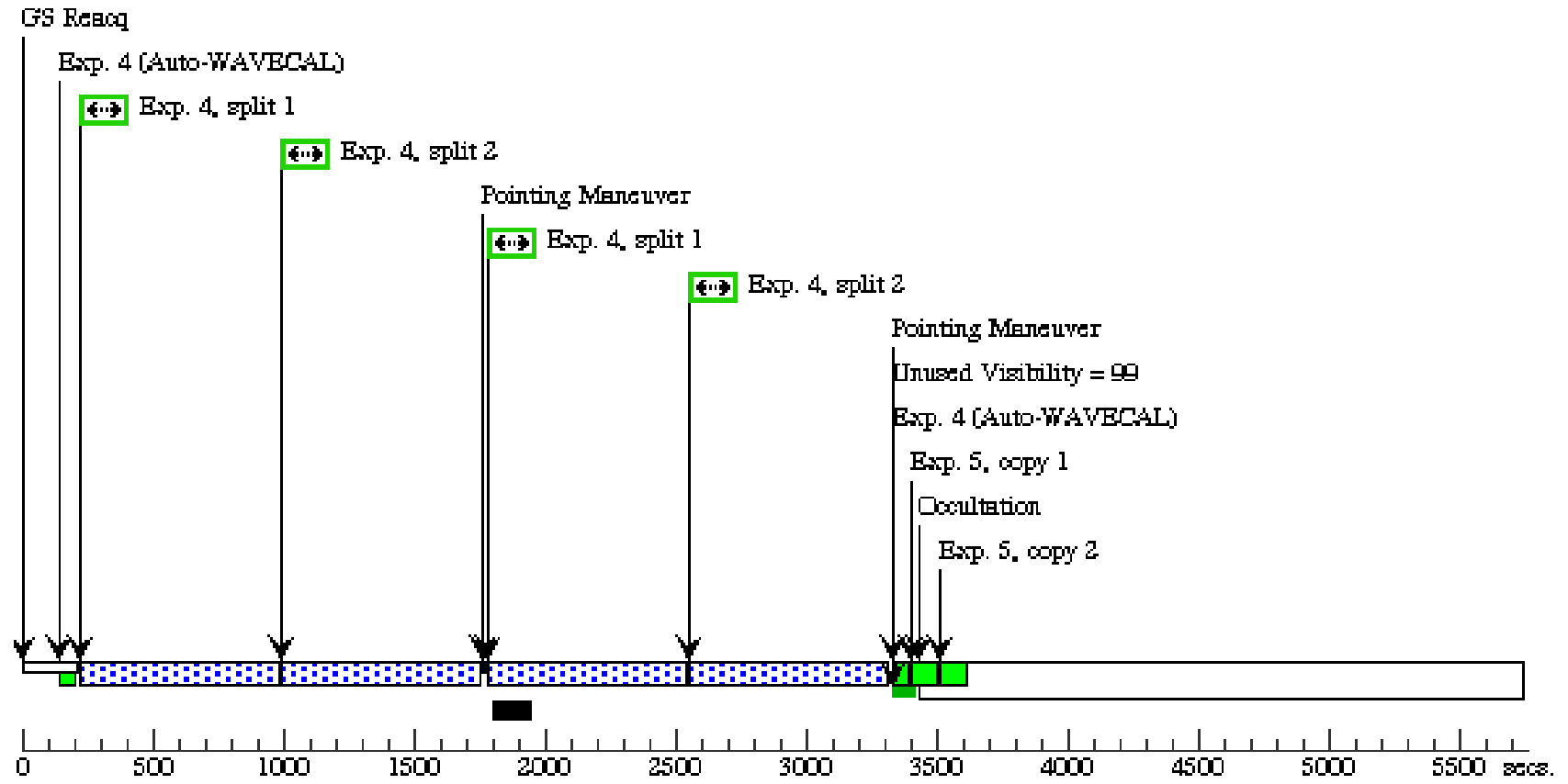
Proposal 12934 - F14394+5332 spectroscopy (11) - The importance warm outflows in the most rapidly evolving galaxies in the local ...

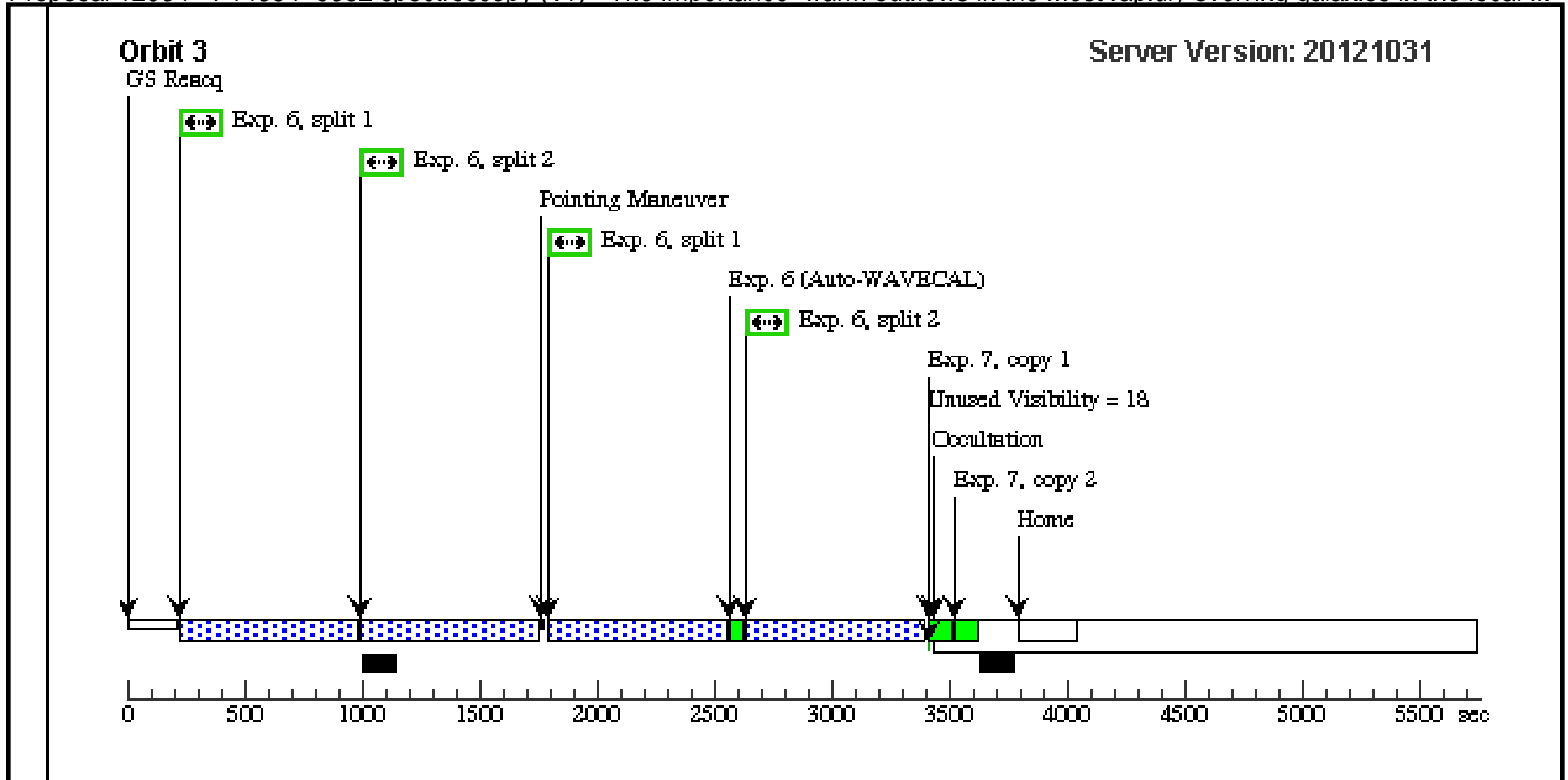
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F14393+533 2 spectroscopic acquisition	(12) F14394+5332-O FFSET	STIS/CCD, ACQ, F28X50LP	MIRROR			GS ACQ SCENARIO O BASE1B3	100 Secs [==>]	[1]
	2	F14394+533 2 eastern slit	(14) F14394+5332-E	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A			Pattern 2, Exps 2-2 in F14394+5332 spectroscopy (11) (2)	1000 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]
	3		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]
	4	F14394+533 2 Central slit	(13) F14394+5332-C	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A			Pattern 2, Exps 4-4 in F14394+5332 spectroscopy (11) (2)	1450 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[2]
	5		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[2]
	6	F14394+533 2 western slit	(15) F14394+5332-W	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A			Pattern 2, Exps 6-6 in F14394+5332 spectroscopy (11) (2)	1450 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[3]
	7		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[3]



**Orbit 2**

Server Version: 20121031





Proposal 12934 - F16156+0146 spectroscopy (13) - The importance warm outflows in the most rapidly evolving galaxies in the local ...

Sat Mar 09 02:26:51 GMT 2013

<b>Visit</b>	<b>Proposal 12934, F16156+0146 spectroscopy (13), implementation</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/CCD Special Requirements: (none) <i>Comments: Long-slit spectroscopy of the nuclear regions of F16156+0146. The target acquisition and slit peakup will be done on a nearby star, and the slit will then be offset to a nucleus of the target galaxy. The slit offset has been determined from the ACS images taken earlier in the program.</i>									
	<b>Diagnosics</b> (F16156+0146 spectroscopy (13)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET									
<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>		<b>Secondary Pattern</b>	<b>Exposures</b>					
	(2)	Pattern Type=STIS-ALONG-SLIT Purpose=DITHER Number Of Points=2 Point Spacing=1.5484 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=90.0 Angle Between Sides= Center Pattern=false		(3)					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(19)	F16156+0146-OFFSET	RA: 16 18 11.1680 (244.5465333d) Dec: +01 39 18.65 (1.65518d) Equinox: J2000		V=19.0+/-0.1 R=18.0	Reference Frame: ICRS				
	<i>Comments: This is the offset star for F16156+0146.</i>									
(20)	F16156+0146-C	Offset from F16156+0146-OFFSET RA Offset: -1.835 Secs Dec Offset: 3.59 Arcsec		V=18.4+/-0.1	Offset Position (F16156+0146-C)					
<i>Comments: This is the main slit position for F16156+0146.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F16156+0146 spectroscopic acquisition	(19) F16156+0146-OFFSET	STIS/CCD, ACQ, F28X50LP	MIRROR				12 Secs	
									[==>]	[1]
	2	F16156+0146 spectroscopic peakup	(19) F16156+0146-OFFSET	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				30 Secs	
									[==>]	[1]
3	F16156+0146 spectroscopy	(20) F16156+0146-C	STIS/CCD, ACCUM, 52X0.1E1	G750L 7751 A				Pattern 2, Exps 3-3 in F16156+0146 spectroscopy (13) (2) 800 Secs		
								[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]	
4	CCDFLAT		STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]	

