12881 - Spanning the chasms: re-observing the transiting exoplanet HD 189733b

Cycle: 20, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
11	(1) HD189733	WFC3/IR	5	13-Jun-2013 21:10:02.0	yes
12	(1) HD189733	WFC3/IR	5	13-Jun-2013 21:17:21.0	yes
13	(1) HD189733	WFC3/IR	5	13-Jun-2013 21:24:50.0	yes

15 Total Orbits Used

ABSTRACT

We propose to validate prior detections of molecular features in published spectra of the transiting hot gas giant HD 189733b. We will observe the planet in transit and in eclipse, with the G141 grism of WFC3, using the spatial scanning technique implemented by STScI and GSFC specifically for just this type of observation. Our proposed observations will resolve the controversy surrounding the chasm between the two leading interpretations of archival NICMOS data by spanning the chasms in existing NICMOS data and WFC3 data which had been intended to resolve that controversy.

OBSERVING DESCRIPTION

This description is organized according to the presciption in ISR-WFC3-2012-8, Considerations for using Spatial Scans with WFC3.

Our program requires high precision time-series spectroscopy in order to form a transit spectrum and an eclipse spectrum of the planet HD 189733b. Hereafter we will describe the transit spectrum |*| the eclipse spectrum is operationally identical except for when we observe in the planet|*|s orbit. Both the transit spectrum and the eclipse spectrum are expected theoretically to exhibit features of ~400 ppm in amplitude.

We will use the WFC3 G141 grism and the spatial scanning technique implemented by STScI and GSFC specifically for just this type of observation of a very bright star (K=5.54 mag).

A full buffer xfer takes 7m15s, or ~10 exposures missing at ~40 s cadence.

Using GRISM512 slows down the RAPID readout so that we can get 32 6-sec exposures per HST orbit. More details are discussed in the first exposure's comments.

We did not select the alternative, SPARS10 because with the nearby companion star, we were forced to keep the total length of the scanned spectrum less than 11.2 arcsec during any given multiaccum segment. But we had to scan at 1.3"/s or faster to avoid saturating the detector. The closest compromise was GRISM256, SPARS10, with exposure times of 7.3 s between multiaccums. But that made the flux an uncomfortably large value of 27500 DN/pixel, and the secondary star's spectrum would be only marginally separate from the primary star's spectrum.

The scans need to be under FGS control, to assure repeatability of the positioning of the spectra on the detector.The scan orientation will be 90 degrees, as appropriate for spectra.

The visit orientation is chosen to avoid the nearby companion star, which is 3.7 mag fainter in K, is 11.2 arcsec away (10.2" W and 4.6" S, or position angle PA = 245.7 degrees (Bakos et al. 2006)). The ideal orient = 135+245 = 380 = 20 degrees (or 200 degrees) will align (or anti-align) the Y axis of the detector with the vector pointing from the bright star to the faint star.

We will interleave forward and reverse scans - this has three potential advantages: A) reduced overhead, B) the detector pixels that are read out will only be illuminated at a constant rate and known times because we are "watching," and C) for each visit there will be two nearly-independent data

sets to compare their final reduced spectra. (A: We anticipate an overhead for instrument preparation and vehicle maneuvers of 51 seconds, based upon APT. B: Persistence in the IR detector leaves an after-image of all bright light that hits the detector, whether or not that light is recorded. Consequently, another potential advantage of interlacing forward and reverse scans is that we record all of the photons that hit the detector pixels from which we will extract our spectrum. In the alternative mode of |*|always-forward|*| scanning, the bright star traverses back across the detector between exposures, but at a non-constant rate and at an imprecisely known time.

The POSTARGs are selected to center the spectrum of HD 189733b in the upper left quadrant of GRISM512. This allows the second order spectrum to be in the upper right quadrant. More details attached to the first exposure.

We have checked the coordinates, proper motion, and parallax of the target star and its nearby companion. The POSTARG of the direct image is such that its persistent image is not on part of the sensor that our spectrum will be on, in subsequent exposures.

These observations are constrained by the orbital ephemeris (to meet the transit or the eclipse), and the orient range (in order to keep the double stars|*| spectra from overlapping). During the course of a year, HD 189733 is visible for 10 months, during which there will be 137 transits of HD 189733b (and 137 eclipses). If we restrict our observations to the 10% most optimal phasings, and 1/2 of those also meet our orient constraint, then we expect 7 transits opportunities (and 7 eclipses).

Ephemeris: the ephemeris copied from Deming's program 12181 differs from that of exoplanet.eu (which comes from Winn et al 2007) by 3.5 minutes as of 2012July10. We should do better than that. The Deming ephemeris comes from Agol 2010 (SST observations) so we'll trust that. For the phase constraint, we figure there's ~44 min of time series data per 96 min HST orbit, so we want the first exposure of the first orbit of five to be at phase = 1-((22+3.*96)/60./24. / 2.21857) = 0.903 with a slop of +- 8 min so the 44 min fits entirely within the 1-hour duration of the "bottom of the transit" and 8 min is ~0.003 of phase for period = 2.2 days. The eclipse occurs at 0.5 phase relative to the transit at 0.0 because the eccentricity is zero.

ADDITIONAL COMMENTS

Once we agree on the final plan for one visit, we need to copy it, change the phase constraint by subtracting 0.5 so we pick up secondary eclipse instead of primary transit, and then submit it.

Visit 11 will be our best plan. Visit 12 will be the copy with the phase shifted by 0.5. The other visits are not to be executed and can be eliminated

when we are ready to submit.

Visit

Proposal 12881, transit (11), completed Fri Jun 14 01:25:29 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: SCHED 50%; ORIENT 0D TO 40 D; ORIENT 180D TO 220 D; Period 2.21857567 D AND ZERO-PHASE HJD2454279.436729

Comments: HD189733b

Visits 11 and 12 are IDENTICAL except for the phase constraint is either 0.9 or 0.4 to select transit or secondary eclipse. DO NOT edit visit 12; instead change visit 11 and then copy, paste, and modify the phase constraint.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD189733	RA: 20 00 43.7100 (300.1821250d)	Proper Motion RA: -2.49 mas/yr	V=7.68	Reference Frame: ICRS
		Dec: +22 42 39.10 (22.71086d)	Proper Motion Dec: -250.81 mas/yr		
		Equinox: J2000	Parallax: 0.052"		
			Epoch of Position: 2000.0		

Comments: Same as used in Deming's program 12181. Position is the same as SIMBAD within 0.01s of time. Proper motion and parallax are from Hipparcos (e.g. Bakos et al. 2006).

The primary target is K = 5.54 mag.

A companion star, 3.7 mag fainter in K, is 11.2 arcsec away (10.2" W and 4.6" S, or position angle PA = 245.7 degrees).

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F132N	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	F132N	SAMP-SEQ=RAPID; NSAMP=3	POS TARG -17.4,0.0; PHASE 0.900 TO 0.906; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	2.559081 Secs (2.559 Secs) *[==>]*	***[1]***

Comments: The direct image is hardly necessary since we will solve for the wavelength solution anyway from the spectra themselves. However, we leave it in because every previous program has used one, and it defines the planetary orbital phase constraint. This exposure sets the phase such that the middle of the 4th HST orbit is within +- 8 minutes of the center of the planetary transit, such that a 44 min typical HST time series window will be entirely contained within a ~60 minute transit duration during which the planet's silhouette is fully within the disk of the star.

We use filter F132N instead of F139M as has been the practice for G141, because we want to select the greatest attenuation possible to keep the K=5.54 mag star from super-saturating the detector. F132N is 3 times narrower than F139M.

We should place the image of the star away from where the 1st order spectrum will be in subsequent exposures to avoid contaminating after images. The POSTARGs specified will accomplish this. The direct image will be at (505,532) - (128,0) = (377,532) in absolute detector coordinates, i.e. in the upper left quadrant below the first order spectrum.

The following text is associated with the FORWARD REVERSE pairs that follow, i.e. the scans. I put it here so it is not replicated scores of times.

POSTARG X = 0 will center the first order spectrum in X on the detector for GRISM512. Hence, POSTARG X = -17.4 will center the spectrum 128 pixels to the left, i.e. at X=512-128=384 so the spectrum will be centered in the upper left quadrant of the 512x512 subarray. Placing the first order spectrum in the upper left quadrant will allow the second order light to be in the upper right quadrant.

POSTARG Y = 13 is estimated as follows.
*POSTARG Y = 0 will place the first order spectrum at Y=532 on the detector for GRISM512. Hence, POSTARG Y = 13 will place the first order spectrum at Y=532+107=640 if we were in staring mode. In scanning mode, the telescope tries to move the star from point A to point B at constant velocity, and it tries to place the star at point A at a particular time that is equal to the 2.935 s prior to the start of the 0th read of the science exposure. (Prior to the TRANS update of Aug 15, 2012, the value was 2*2.935 s, but after that date it is 1*2.935 s). Because we are taking 5.971 s science exposures, the start of the 0th read is 2.9855 s prior to the middle of the science exposure. By the coincidence that 2.935 s is very nearly equal to 2.9855 s, and hence the staring mode placement is very nearly equal to the middle of the scanned-spectrum. This should be true for either forward or reverse scans.*

Our scanned spectrum will be 12.0" (99 pixels) tall at 2"/s scan rate. Hence, we anticipate the first order spectrum to be centered on X,Y=384,640 and extend 50 pixels above and below that and about 65 pixels to the left and right of that. The X positioning is more reliable than the Y position because of the scanning in Y direction. In order that our spectrum not be clipped by the top of the subarray, we require the timing to not be off by more than (128-50) pixels at 16.5 pixels/s rate, or 4.7 seconds. That is adequate margin and another good aspect of using the GRISM512 for this program.

Scanning at 2.0"/s for this K=5.54 star will produce a peak count rate of 18000 DN/pix, or 55% of the nominal full well.

Although the scan height of 12 arcsec will make the secondary star overlap with the primary star if we simply analyze the data as last-first CDS pairs, we can instead analyze the data in smaller time differences because NSAMP=7, and hence separate the two stars in the data.

2	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
3	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
4	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

5	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
6	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
7	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
8	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
9	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
10	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
11	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***

12	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
13	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
14	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
15	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
16	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
17	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
18	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***

19	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
20	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
21	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
22	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
23	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
24	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
25	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

26	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
27	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
28	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
29	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
30	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
31	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
32	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***

33	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
34	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
35	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
36	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
37	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
38	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
39	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

40	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
41	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
42	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
43	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
44	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
45	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
46	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

47	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***
48	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***
49	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***
50	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***
51	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***
52	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***
53	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs)	*[==>]*	***[2]***

54	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
55	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
56	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
57	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
58	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
59	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
60	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

61	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
62	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
63	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
64	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
65	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
66	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
67	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13 ; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

68	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
69	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
70	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
71	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
72	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
73	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
74	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

75	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
76	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
77	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
78	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
79	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
80	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
81	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***

82	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
83	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
84	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
85	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
86	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
87	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
88	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

89	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
90	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
91	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
92	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
93	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
94	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***
95	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*		***[3]***

96	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
97	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
98	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
99	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
100	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
101	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
102	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

103	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
104	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
105	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
106	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
107	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
108	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
109	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

110	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
111	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
112	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
113	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
114	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
115	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
116	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

117	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
118	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
119	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
120	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
121	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
122	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
123	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

124	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
125	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
126	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
127	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
128	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
129	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
130	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

131	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
132	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
133	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
134	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
135	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
136	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
137	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

138	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
139	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
140	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
141	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
142	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
143	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
144	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

145	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
146	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
147	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
148	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
149	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
150	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
151	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

152	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
153	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
154	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
155	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
156	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
157	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
158	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

	159	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	 ***[5]***
	160	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in transit (11)	5.971189 Secs (5.971 Secs) *[==>]*	 ***[5]***

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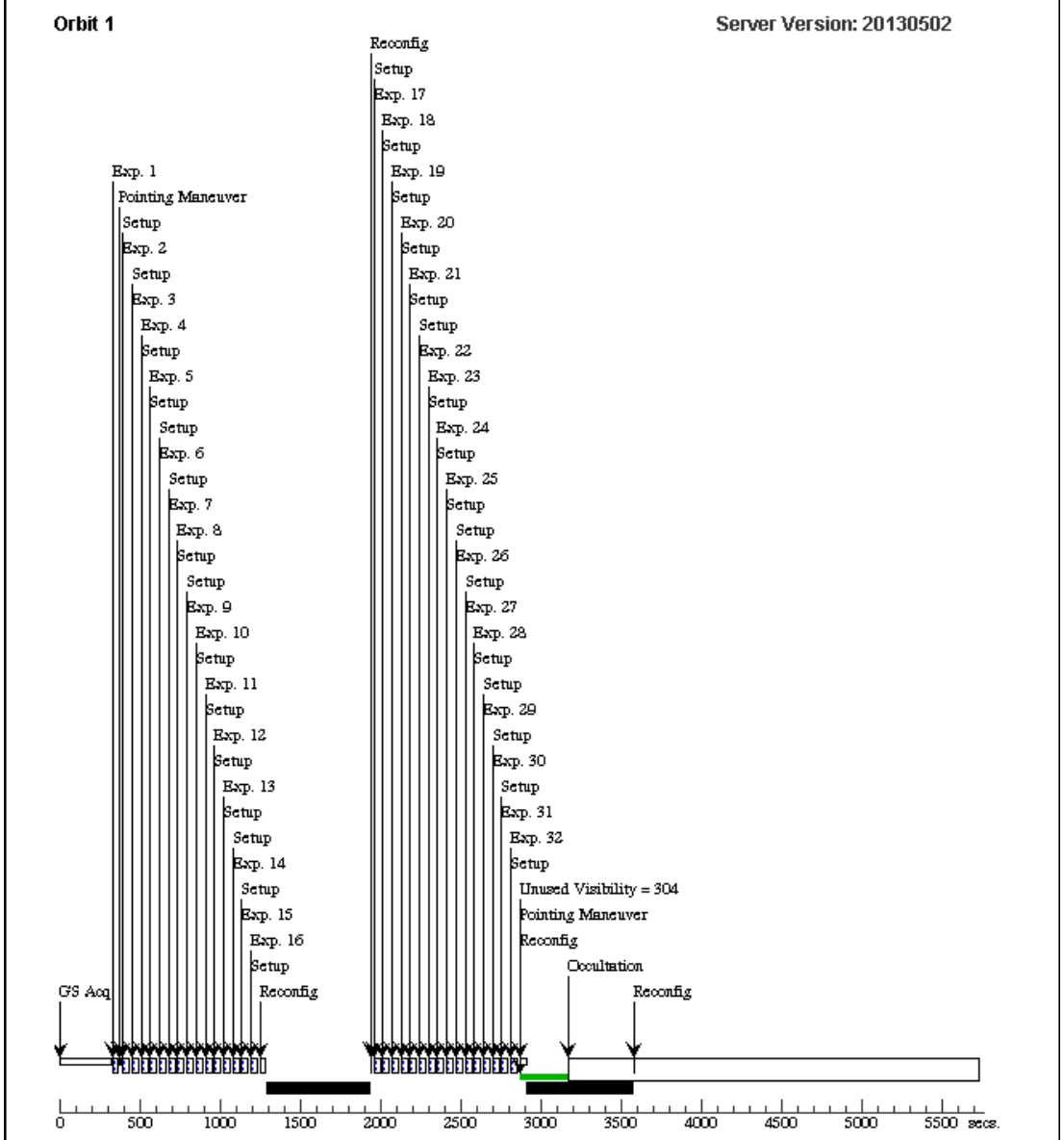

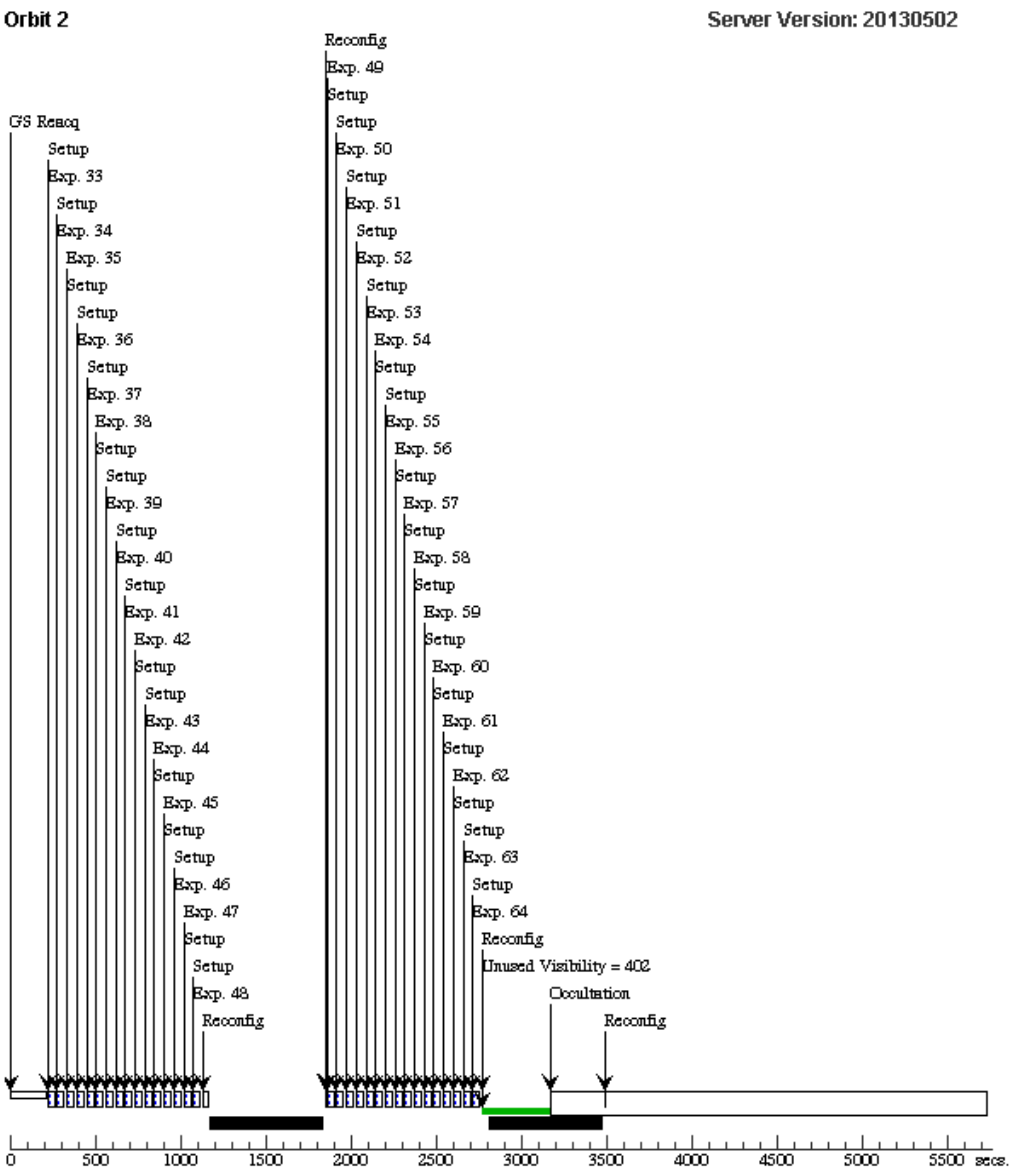
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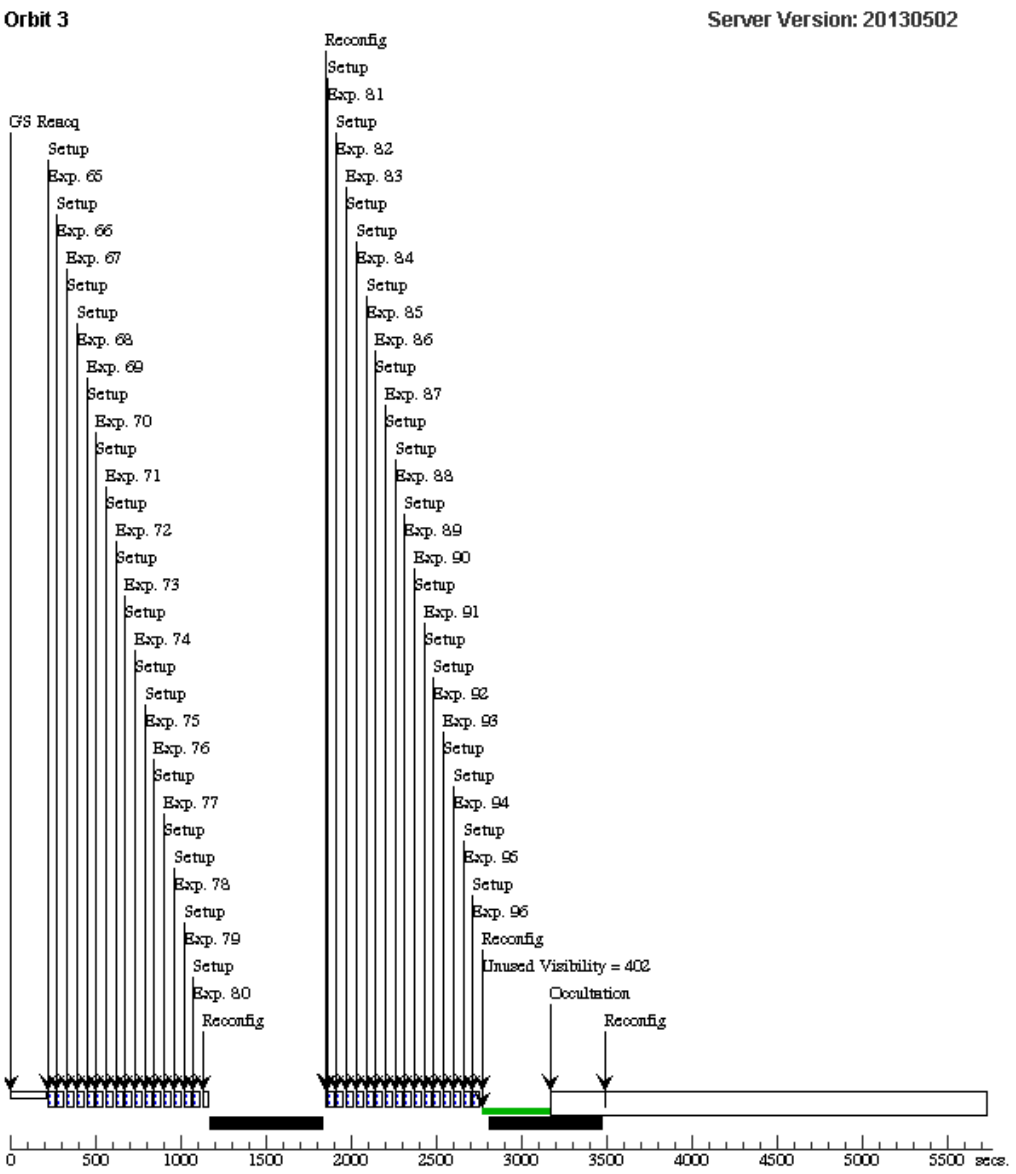
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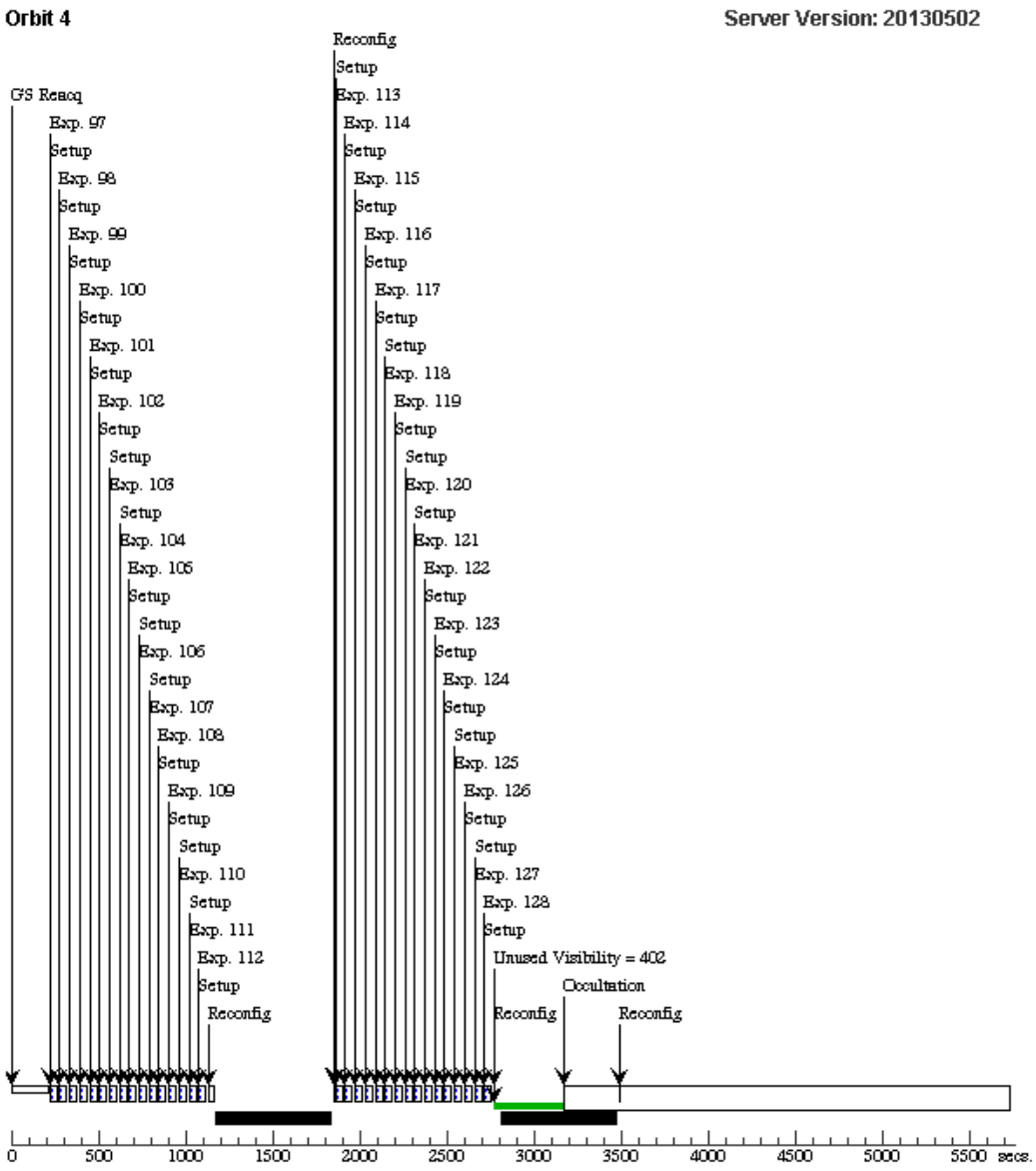
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Unused Visibility = 402
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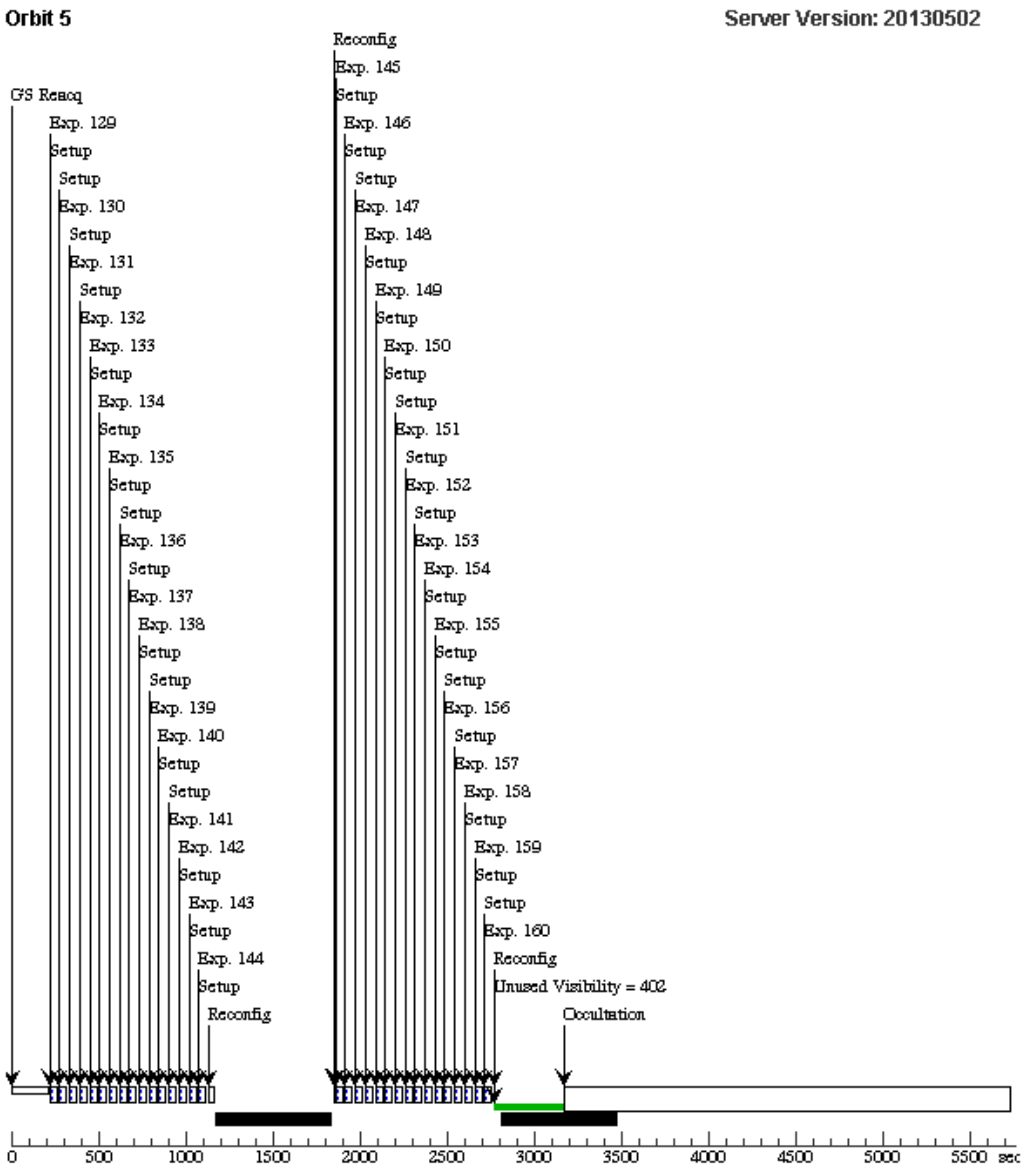
Orbit 5
Server Version: 20130502
GS Reacq
Exp. 129
Setup
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Exp. 130
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Exp. 131
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Exp. 160
Reconfig
Unused Visibility = 402
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Proposal 12881 - eclipse (12) - Spanning the chasms: re-observing the transiting exoplanet HD 189733b

Visit

Proposal 12881, eclipse (12), scheduling Fri Jun 14 01:25:50 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: SCHED 50%; ORIENT 0D TO 40 D; ORIENT 180D TO 220 D; Period 2.21857567 D AND ZERO-PHASE HJD2454279.436729

Comments: HD189733b

Visits 11 and 12 are IDENTICAL except for the phase constraint is either 0.9 or 0.4 to select transit or secondary eclipse. DO NOT edit visit 12; instead change visit 11 and then copy, paste, and modify the phase constraint.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD189733	RA: 20 00 43.7100 (300.1821250d)	Proper Motion RA: -2.49 mas/yr	V=7.68	Reference Frame: ICRS
		Dec: +22 42 39.10 (22.71086d)	Proper Motion Dec: -250.81 mas/yr		
		Equinox: J2000	Parallax: 0.052"		
			Epoch of Position: 2000.0		

Comments: Same as used in Deming's program 12181. Position is the same as SIMBAD within 0.01s of time. Proper motion and parallax are from Hipparcos (e.g. Bakos et al. 2006).

The primary target is K = 5.54 mag.

A companion star, 3.7 mag fainter in K, is 11.2 arcsec away (10.2" W and 4.6" S, or position angle PA = 245.7 degrees).

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F132N	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	F132N	SAMP-SEQ=RAPID; NSAMP=3	POS TARG -17.4,0.0; PHASE 0.400 TO 0.406; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	2.559081 Secs (2.559 Secs) *[==>]*	***[1]***

Comments: The direct image is hardly necessary since we will solve for the wavelength solution anyway from the spectra themselves. However, we leave it in because every previous program has used one, and it defines the planetary orbital phase constraint. This exposure sets the phase such that the middle of the 4th HST orbit is within +- 8 minutes of the center of the planetary transit, such that a 44 min typical HST time series window will be entirely contained within a ~60 minute transit duration during which the planet's silhouette is fully within the disk of the star.

We use filter F132N instead of F139M as has been the practice for G141, because we want to select the greatest attenuation possible to keep the K=5.54 mag star from super-saturating the detector. F132N is 3 times narrower than F139M.

We should place the image of the star away from where the 1st order spectrum will be in subsequent exposures to avoid contaminating after images. The POSTARGs specified will accomplish this. The direct image will be at (505,532) - (128,0) = (377,532) in absolute detector coordinates, i.e. in the upper left quadrant below the first order spectrum.

The following text is associated with the FORWARD REVERSE pairs that follow, i.e. the scans. I put it here so it is not replicated scores of times.

POSTARG X = 0 will center the first order spectrum in X on the detector for GRISM512. Hence, POSTARG X = -17.4 will center the spectrum 128 pixels to the left, i.e. at X=512-128=384 so the spectrum will be centered in the upper left quadrant of the 512x512 subarray. Placing the first order spectrum in the upper left quadrant will allow the second order light to be in the upper right quadrant.

POSTARG Y = 13 is estimated as follows.
*POSTARG Y = 0 will place the first order spectrum at Y=532 on the detector for GRISM512. Hence, POSTARG Y = 13 will place the first order spectrum at Y=532+107=640 if we were in staring mode. In scanning mode, the telescope tries to move the star from point A to point B at constant velocity, and it tries to place the star at point A at a particular time that is equal to the 2.935 s prior to the start of the 0th read of the science exposure. (Prior to the TRANS update of Aug 15, 2012, the value was 2*2.935 s, but after that date it is 1*2.935 s). Because we are taking 5.971 s science exposures, the start of the 0th read is 2.9855 s prior to the middle of the science exposure. By the coincidence that 2.935 s is very nearly equal to 2.9855 s, and hence the staring mode placement is very nearly equal to the middle of the scanned-spectrum. This should be true for either forward or reverse scans.*

Our scanned spectrum will be 12.0" (99 pixels) tall at 2"/s scan rate. Hence, we anticipate the first order spectrum to be centered on X,Y=384,640 and extend 50 pixels above and below that and about 65 pixels to the left and right of that. The X positioning is more reliable than the Y position because of the scanning in Y direction. In order that our spectrum not be clipped by the top of the subarray, we require the timing to not be off by more than (128-50) pixels at 16.5 pixels/s rate, or 4.7 seconds. That is adequate margin and another good aspect of using the GRISM512 for this program.

Scanning at 2.0"/s for this K=5.54 star will produce a peak count rate of 18000 DN/pix, or 55% of the nominal full well.

Although the scan height of 12 arcsec will make the secondary star overlap with the primary star if we simply analyze the data as last-first CDS pairs, we can instead analyze the data in smaller time differences because NSAMP=7, and hence separate the two stars in the data.

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
3	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
4	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

5	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
6	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
7	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
8	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
9	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
10	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
11	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***

12	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
13	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
14	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
15	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
16	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
17	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
18	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***

19	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
20	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
21	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
22	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
23	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
24	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***
25	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[1]***

26	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
27	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
28	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
29	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
30	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
31	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***
32	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[1]***

33	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
34	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
35	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
36	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
37	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
38	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
39	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

40	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***
41	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***
42	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***
43	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***
44	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***
45	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***
46	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*		***[2]***

47	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
48	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
49	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
50	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
51	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
52	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
53	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

54	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
55	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
56	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
57	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
58	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
59	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
60	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

61	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
62	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
63	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
64	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
65	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
66	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
67	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

68	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
69	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
70	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
71	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
72	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
73	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
74	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

75	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
76	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
77	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
78	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
79	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
80	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
81	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

82	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
83	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
84	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
85	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
86	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
87	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
88	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

89	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***
90	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***
91	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***
92	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***
93	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***
94	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***
95	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[3]***

96	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
97	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
98	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
99	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
100	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
101	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
102	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

103	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***
104	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***
105	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***
106	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***
107	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***
108	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***
109	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)	*[==>]*	***[4]***

110	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***
111	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***
112	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***
113	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***
114	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***
115	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***
116	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs)		
								[==>]		***[4]***

117	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
118	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
119	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
120	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
121	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
122	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
123	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

124	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
125	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
126	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
127	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
128	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
129	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
130	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

131	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
132	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
133	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
134	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
135	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
136	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
137	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

138	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
139	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
140	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
141	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
142	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
143	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
144	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

145	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
146	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
147	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
148	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
149	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
150	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
151	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

152	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
153	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
154	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
155	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
156	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
157	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
158	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

	159	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
	160	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -17.4,13; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (12)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

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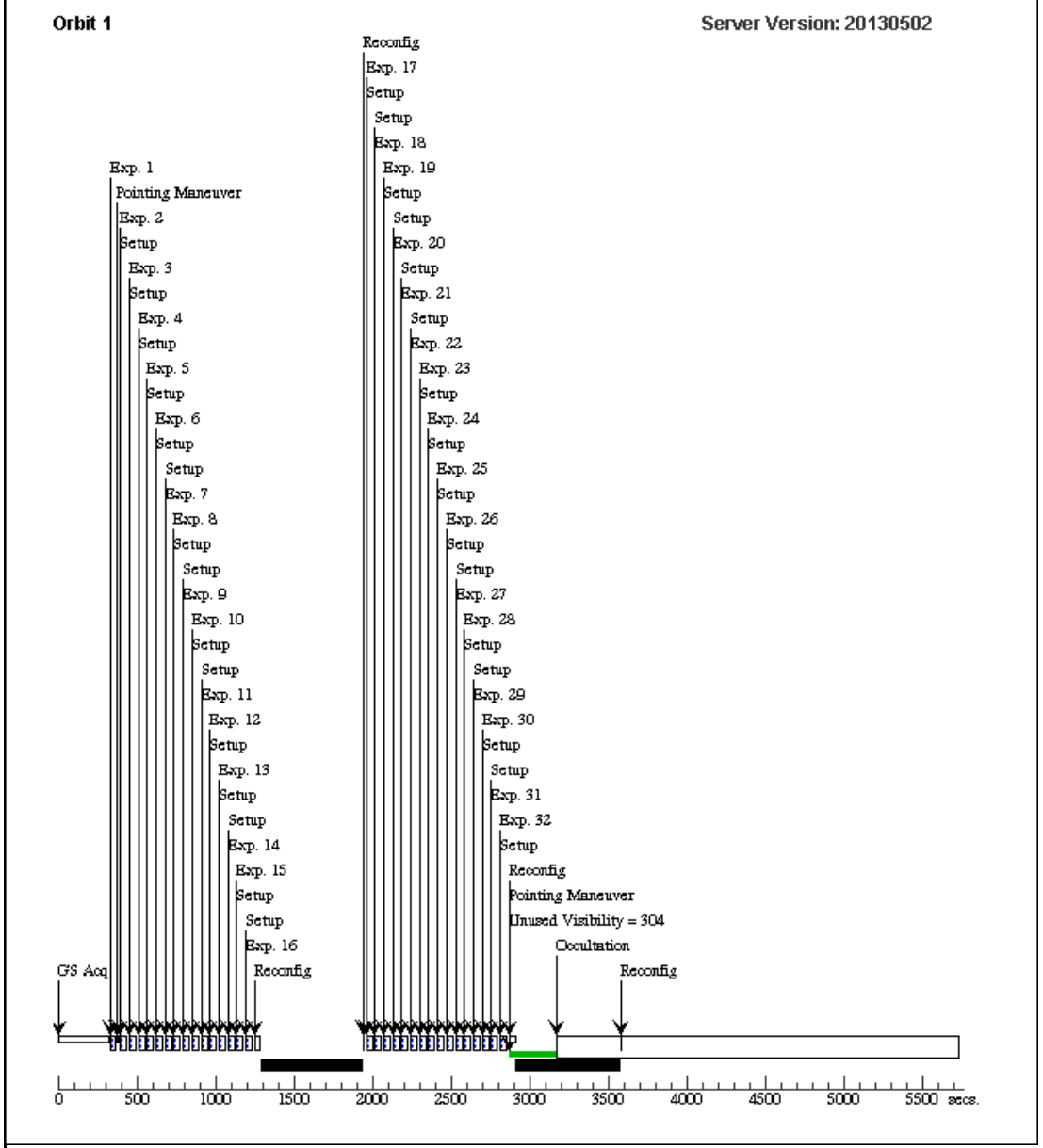

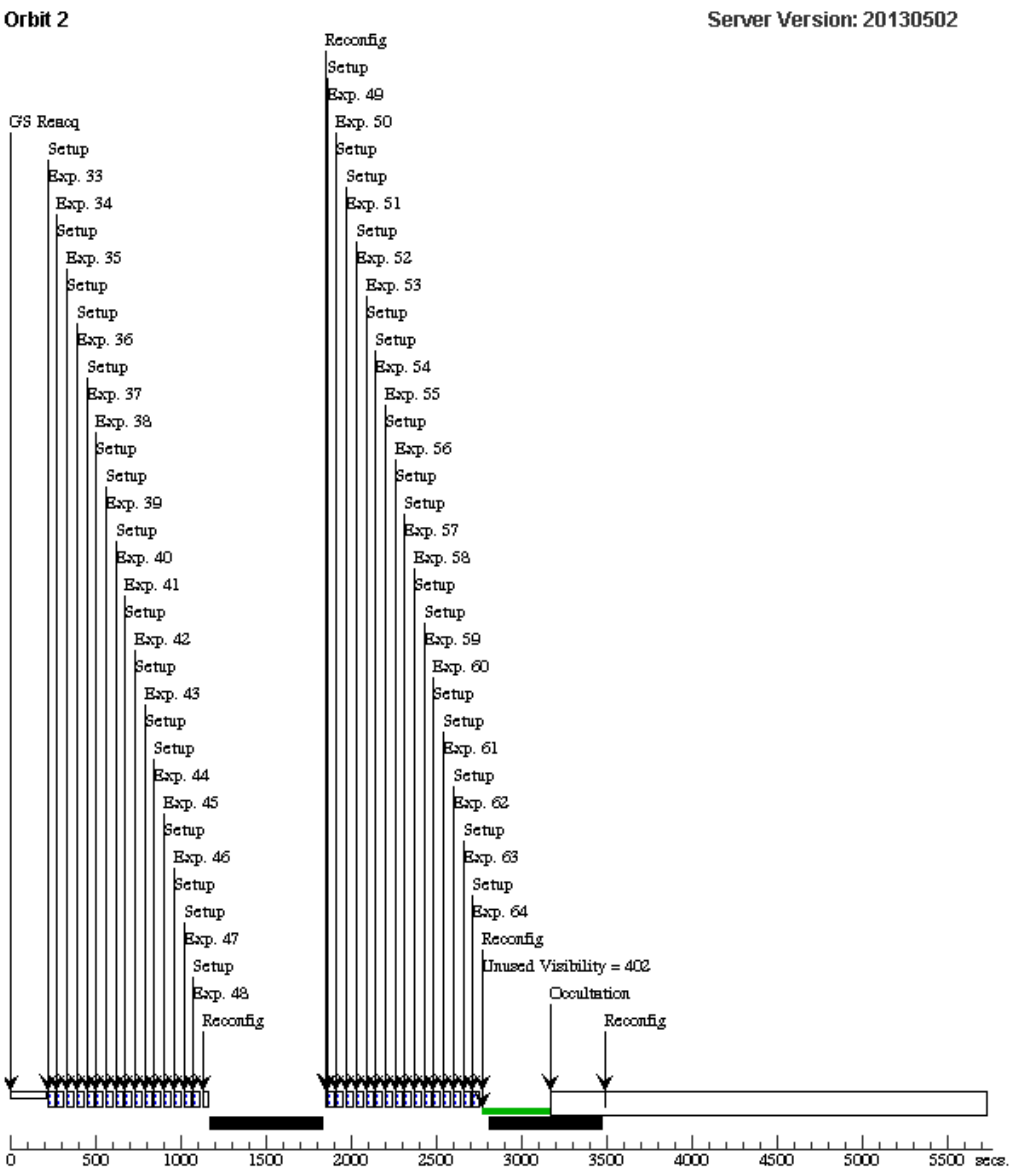
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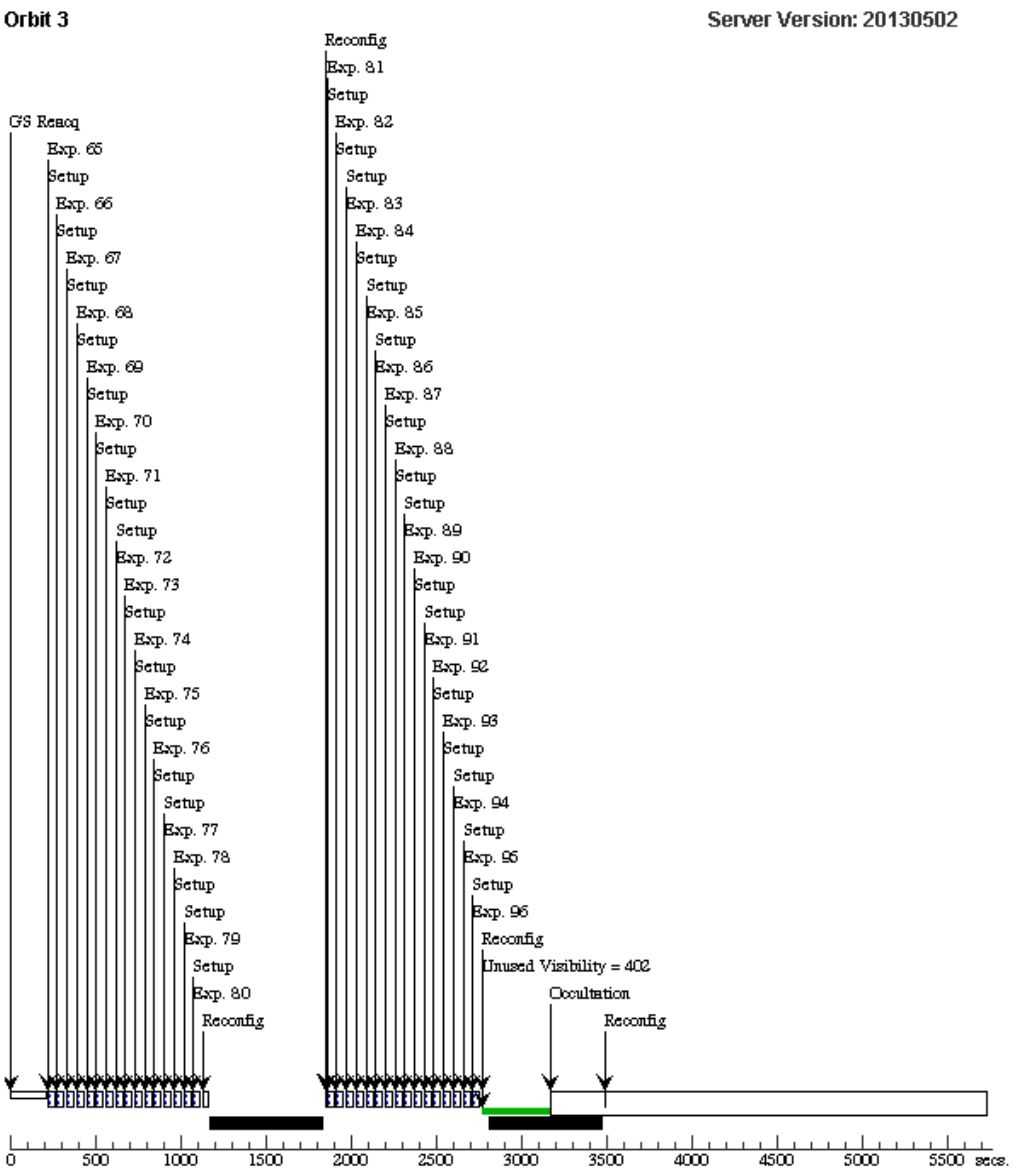
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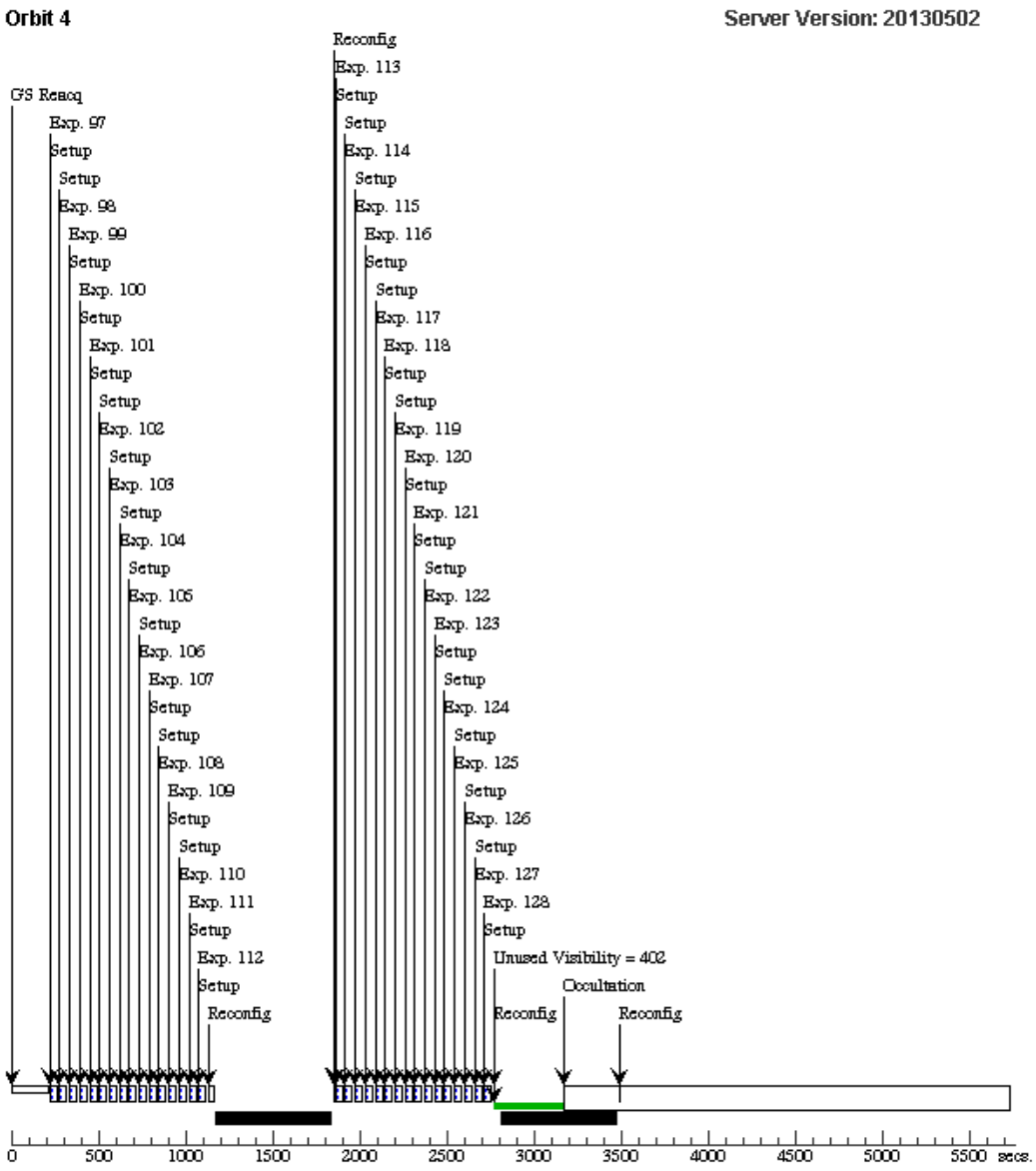
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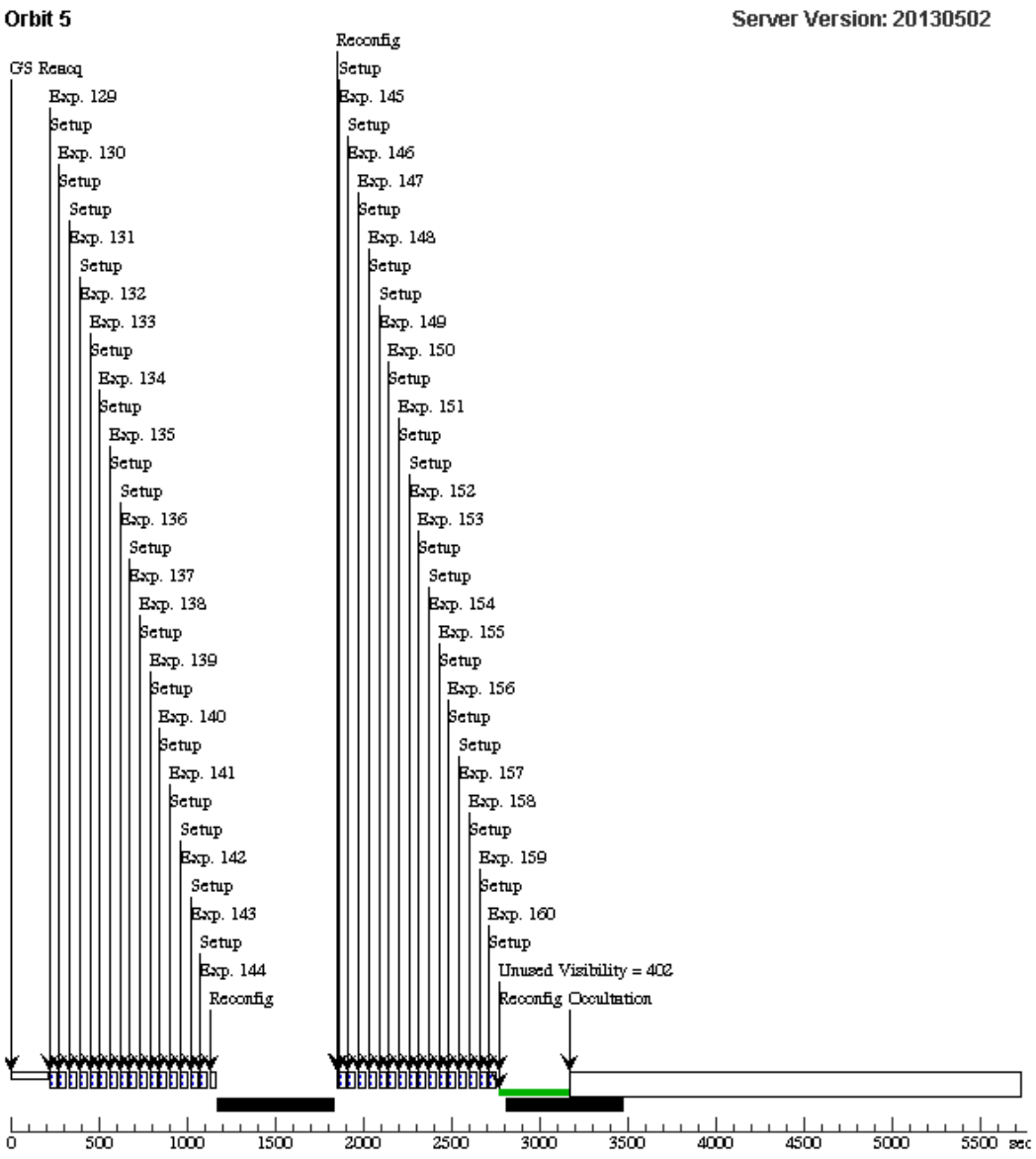
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Visit

Proposal 12881, eclipse (13) Fri Jun 14 01:26:07 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: SCHED 50%; ORIENT 0D TO 40 D; ORIENT 180D TO 220 D; Period 2.21857567 D AND ZERO-PHASE HJD2454279.436729

Comments: HD189733b

Visits 11 and 12 are IDENTICAL except for the phase constraint is either 0.9 or 0.4 to select transit or secondary eclipse. DO NOT edit visit 12; instead change visit 11 and then copy, paste, and modify the phase constraint.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD189733	RA: 20 00 43.7100 (300.1821250d)	Proper Motion RA: -2.49 mas/yr	V=7.68	Reference Frame: ICRS
		Dec: +22 42 39.10 (22.71086d)	Proper Motion Dec: -250.81 mas/yr		
		Equinox: J2000	Parallax: 0.052"		
			Epoch of Position: 2000.0		

Comments: Same as used in Deming's program 12181. Position is the same as SIMBAD within 0.01s of time. Proper motion and parallax are from Hipparcos (e.g. Bakos et al. 2006).

The primary target is K = 5.54 mag.

A companion star, 3.7 mag fainter in K, is 11.2 arcsec away (10.2" W and 4.6" S, or position angle PA = 245.7 degrees).

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F132N	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	F132N	SAMP-SEQ=RAPID; NSAMP=3	POS TARG -17.4,0.0; PHASE 0.400 TO 0.406; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	2.559081 Secs (2.559 Secs) *[==>]*	***[1]***

Comments: The direct image is hardly necessary since we will solve for the wavelength solution anyway from the spectra themselves. However, we leave it in because every previous program has used one, and it defines the planetary orbital phase constraint. This exposure sets the phase such that the middle of the 4th HST orbit is within +- 8 minutes of the center of the planetary transit, such that a 44 min typical HST time series window will be entirely contained within a ~60 minute transit duration during which the planet's silhouette is fully within the disk of the star.

We use filter F132N instead of F139M as has been the practice for G141, because we want to select the greatest attenuation possible to keep the K=5.54 mag star from super-saturating the detector. F132N is 3 times narrower than F139M.

We should place the image of the star away from where the 1st order spectrum will be in subsequent exposures to avoid contaminating after images. The POSTARGs specified will accomplish this. The direct image will be at (505,532) - (128,0) = (377,532) in absolute detector coordinates, i.e. in the upper left quadrant below the first order spectrum.

The following text is associated with the FORWARD REVERSE pairs that follow, i.e. the scans. I put it here so it is not replicated scores of times.

POSTARG X = 0 will center the first order spectrum in X on the detector for GRISM512. Hence, POSTARG X = -17.4 will center the spectrum 128 pixels to the left, i.e. at X=512-128=384 so the spectrum will be centered in the upper left quadrant of the 512x512 subarray. Placing the first order spectrum in the upper left quadrant will allow the second order light to be in the upper right quadrant.

POSTARG Y = 13 is estimated as follows.
*POSTARG Y = 0 will place the first order spectrum at Y=532 on the detector for GRISM512. Hence, POSTARG Y = 13 will place the first order spectrum at Y=532+107=640 if we were in staring mode. In scanning mode, the telescope tries to move the star from point A to point B at constant velocity, and it tries to place the star at point A at a particular time that is equal to the 2.935 s prior to the start of the 0th read of the science exposure. (Prior to the TRANS update of Aug 15, 2012, the value was 2*2.935 s, but after that date it is 1*2.935 s). Because we are taking 5.971 s science exposures, the start of the 0th read is 2.9855 s prior to the middle of the science exposure. By the coincidence that 2.935 s is very nearly equal to 2.9855 s, and hence the staring mode placement is very nearly equal to the middle of the scanned-spectrum. This should be true for either forward or reverse scans.*

Our scanned spectrum will be 12.0" (99 pixels) tall at 2"/s scan rate. Hence, we anticipate the first order spectrum to be centered on X,Y=384,640 and extend 50 pixels above and below that and about 65 pixels to the left and right of that. The X positioning is more reliable than the Y position because of the scanning in Y direction. In order that our spectrum not be clipped by the top of the subarray, we require the timing to not be off by more than (128-50) pixels at 16.5 pixels/s rate, or 4.7 seconds. That is adequate margin and another good aspect of using the GRISM512 for this program.

Scanning at 2.0"/s for this K=5.54 star will produce a peak count rate of 18000 DN/pix, or 55% of the nominal full well.

Although the scan height of 12 arcsec will make the secondary star overlap with the primary star if we simply analyze the data as last-first CDS pairs, we can instead analyze the data in smaller time differences because NSAMP=7, and hence separate the two stars in the data.

2	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
3	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
4	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

	5	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	6	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	7	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	8	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	9	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	10	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	11	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	12	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
	13	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

14	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
15	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
16	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
17	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
18	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
19	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
20	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
21	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
22	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

23	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
24	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
25	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
26	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
27	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
28	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
29	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
30	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
31	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***

32	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 1-32 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[1]***
33	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
34	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
35	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
36	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
37	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
38	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
39	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
40	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

41	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
42	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
43	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
44	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
45	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
46	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
47	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
48	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
49	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

50	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
51	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
52	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
53	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
54	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
55	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
56	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
57	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
58	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***

59	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
60	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
61	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
62	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
63	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
64	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 33-64 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[2]***
65	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
66	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
67	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

68	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
69	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
70	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
71	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
72	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
73	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
74	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
75	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
76	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

77	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
78	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
79	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
80	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
81	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
82	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
83	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
84	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
85	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

86	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
87	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
88	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
89	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
90	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
91	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
92	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
93	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
94	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***

95	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
96	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 65-96 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[3]***
97	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
98	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
99	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
100	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
101	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
102	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
103	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

104	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
105	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
106	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
107	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
108	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
109	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
110	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
111	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
112	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

113	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
114	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
115	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
116	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
117	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
118	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
119	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
120	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
121	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***

122	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
123	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
124	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
125	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
126	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
127	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
128	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 97-128 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[4]***
129	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
130	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

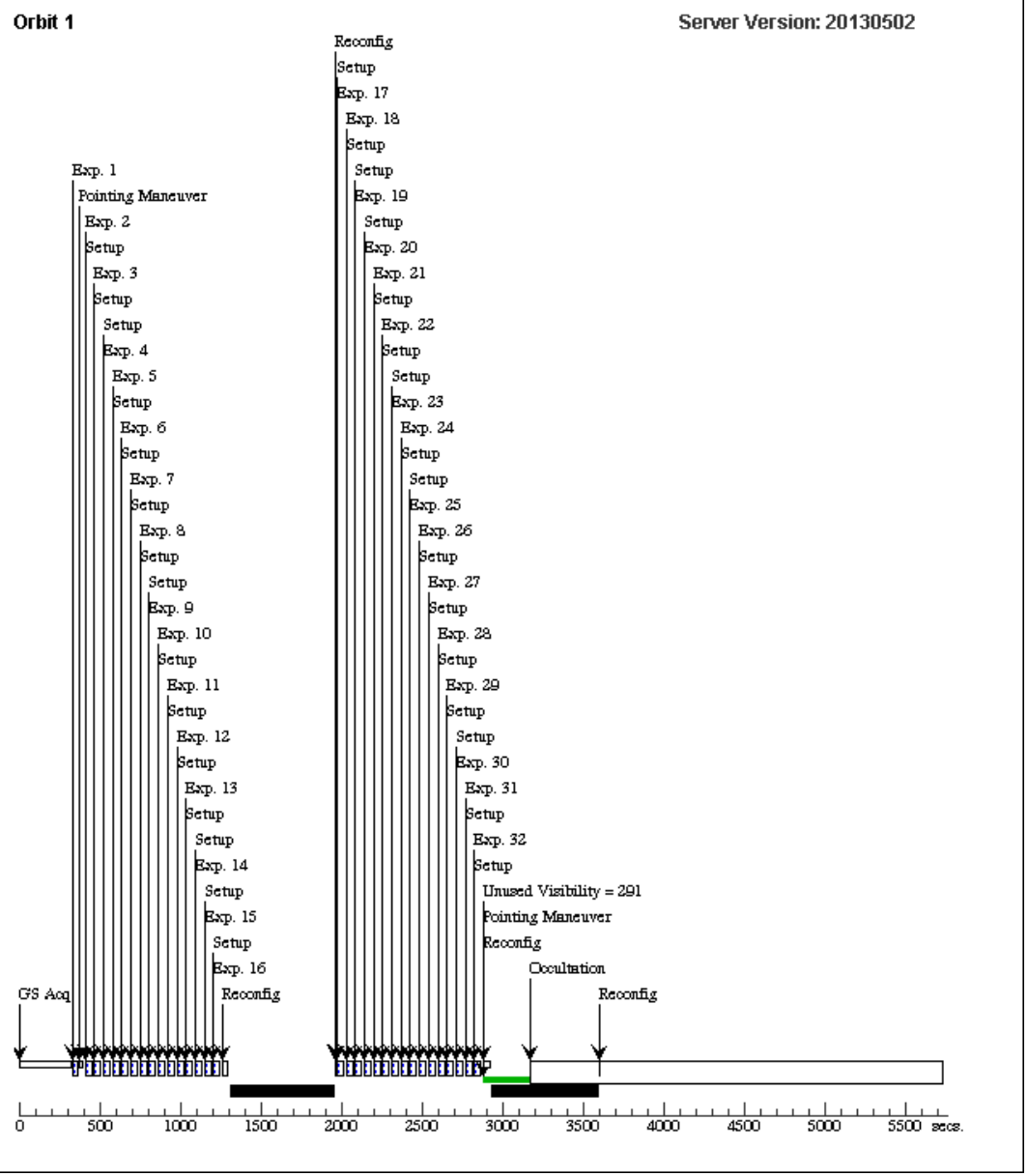
131	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
132	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
133	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
134	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
135	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
136	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
137	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
138	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
139	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

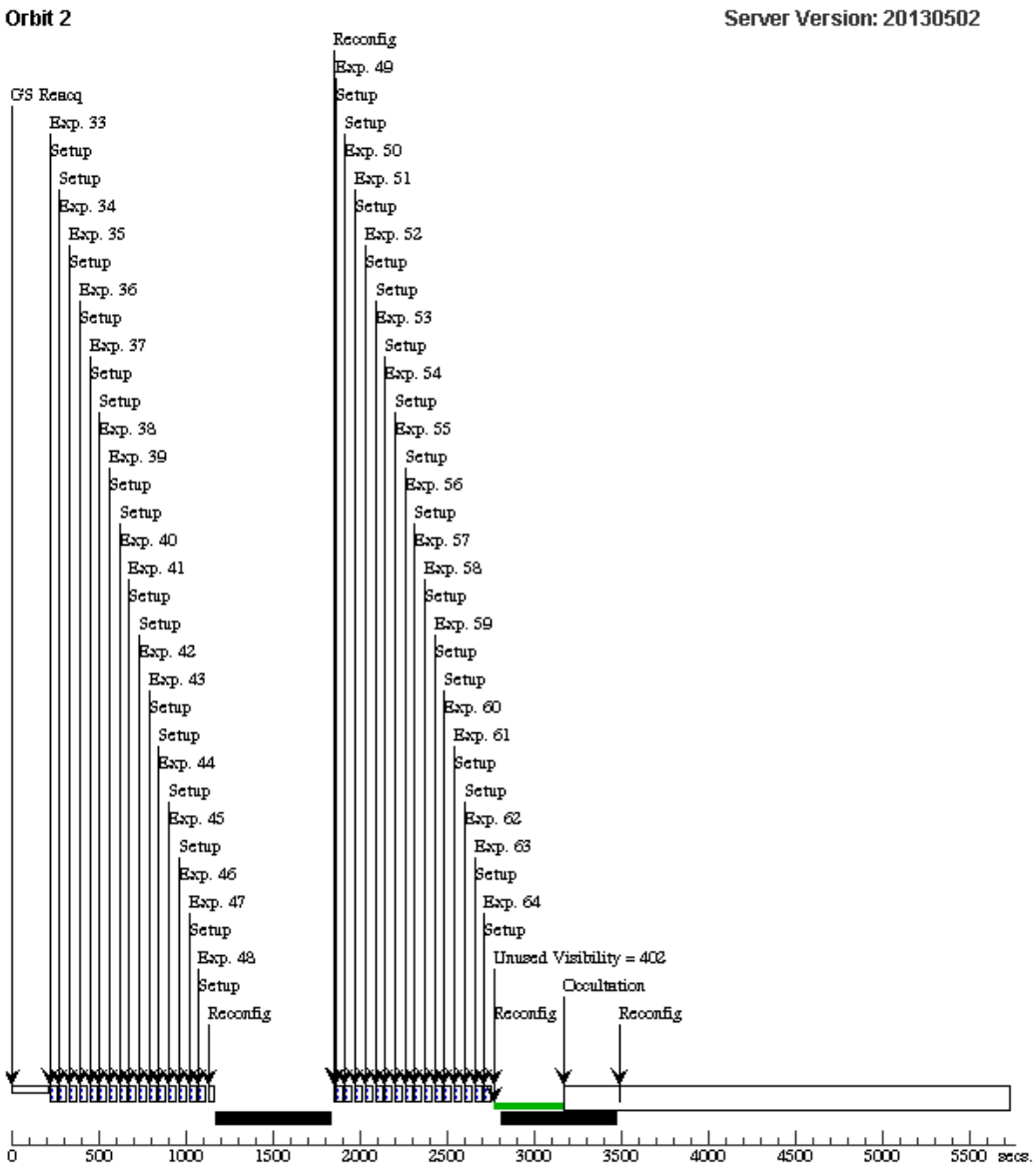
140	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
141	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
142	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
143	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
144	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
145	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
146	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
147	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
148	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

149	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
150	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
151	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
152	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
153	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
154	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
155	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
156	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
157	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

	158	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
	159	Forward	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Forward; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***
	160	Reverse	(1) HD189733	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=RAPID	POS TARG -27.4,1; SPATIAL SCAN 2.0 ,90.0 Degrees,Reverse; EXP PCS MODE FINE	Sequence 129-160 Non-Int in eclipse (13)	5.971189 Secs (5.971 Secs) *[==>]*	***[5]***

Orbit Structure

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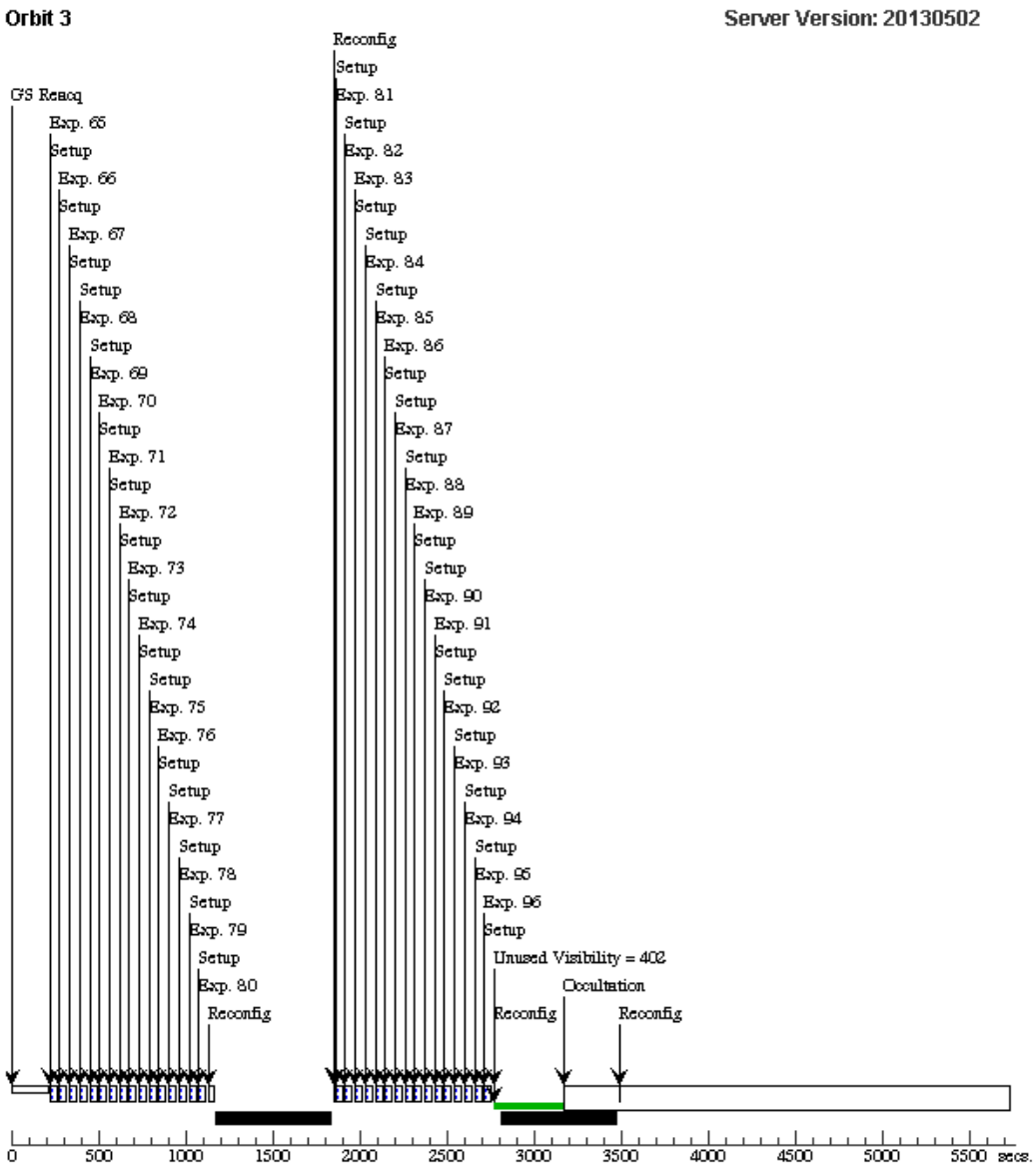
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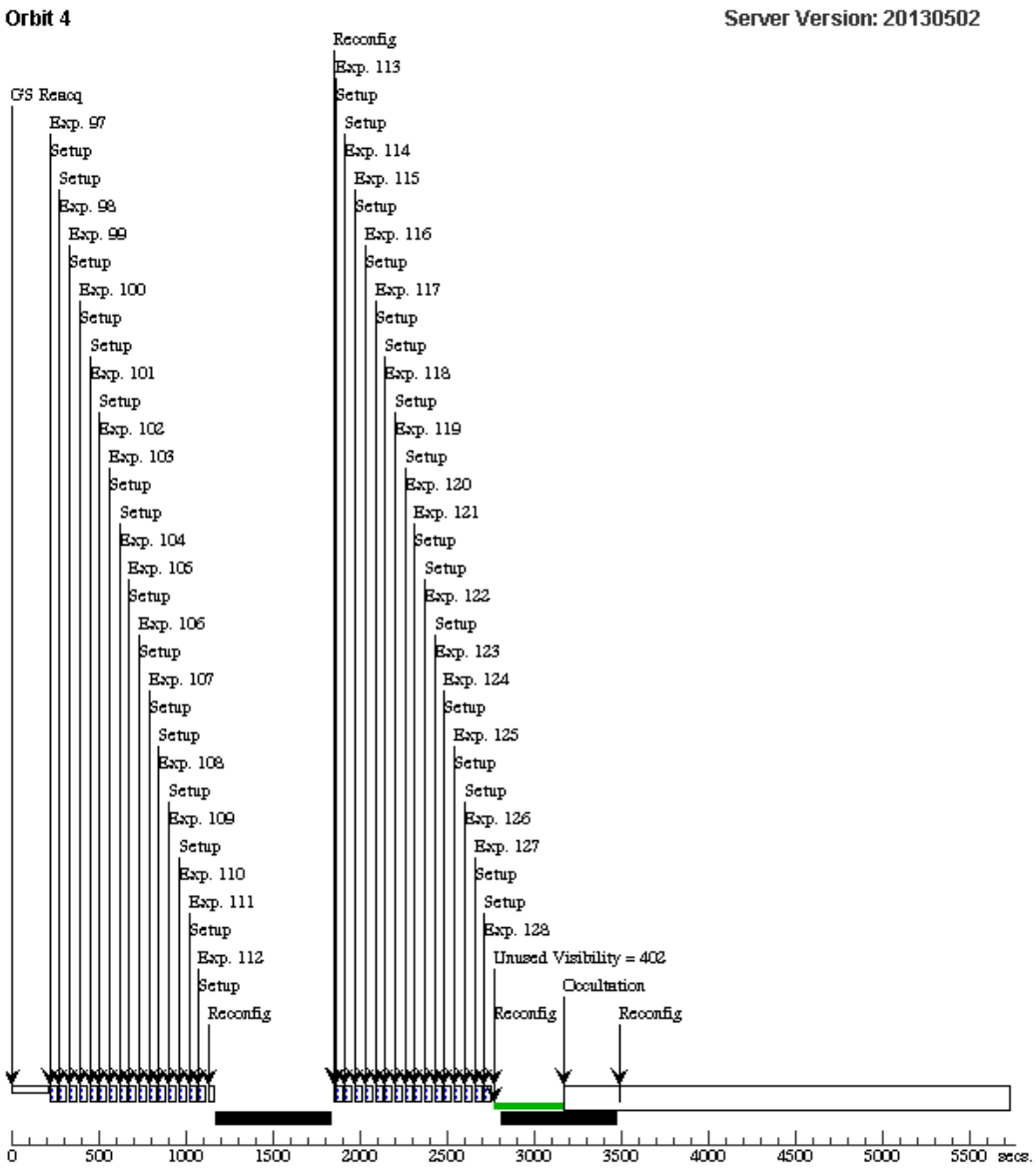
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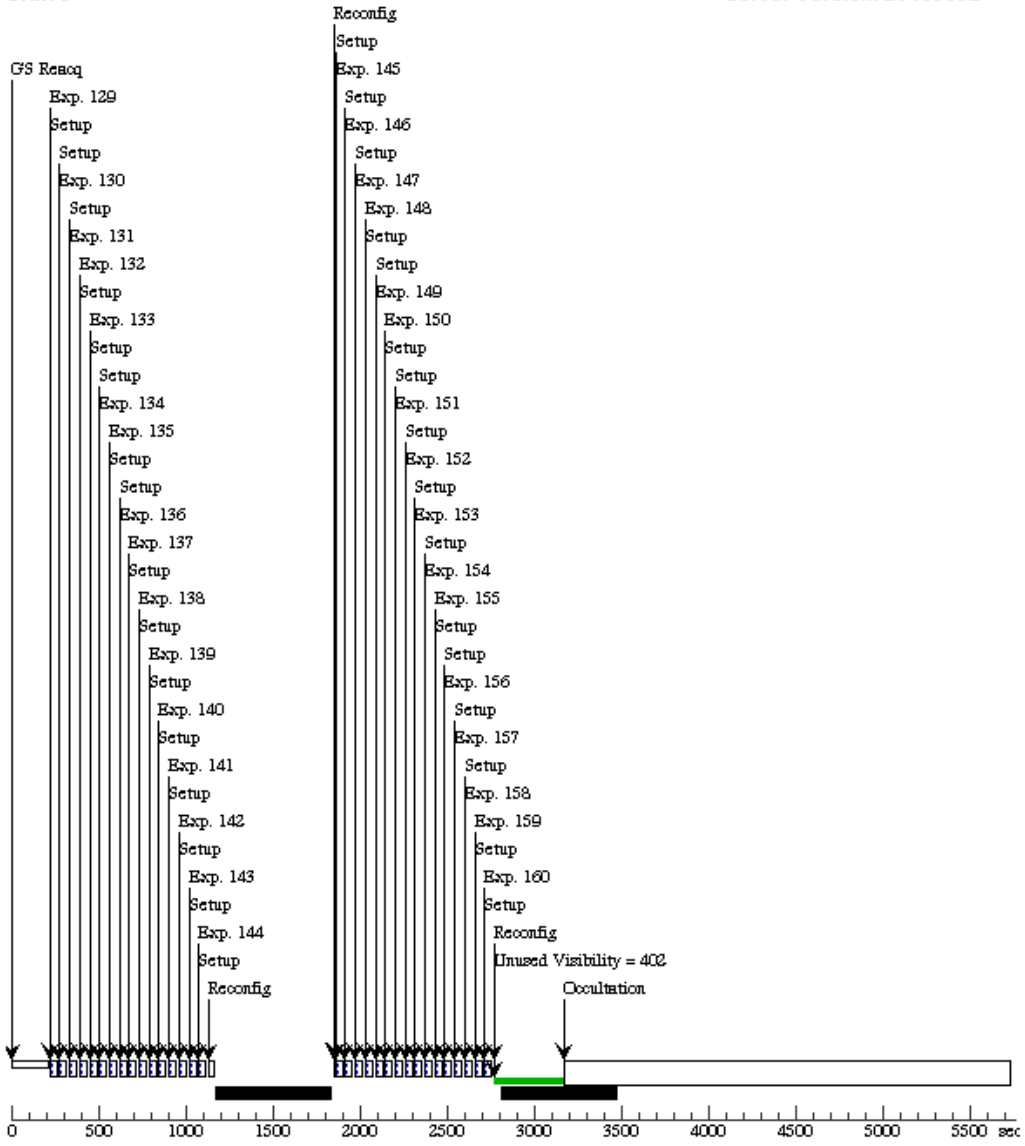
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