



## 12330 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Cycle: 18, Proposal Category: GO

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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### VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) WISE1405+55	WFC3/IR	1	19-Jan-2011 21:02:07.0	yes
02	(2) WISE1828+26	WFC3/IR	1	19-Jan-2011 21:02:12.0	yes
03	(3) WISE0350-56	WFC3/IR	1	19-Jan-2011 21:02:17.0	yes
04	(4) WISE0359-54	WFC3/IR	1	19-Jan-2011 21:02:22.0	yes
05	(5) WISE1208-48	WFC3/IR	1	19-Jan-2011 21:02:28.0	yes
06	(6) WISE1545-84	WFC3/IR	1	19-Jan-2011 21:02:33.0	yes
07	(7) WISE1754+32	WFC3/IR	1	19-Jan-2011 21:02:37.0	yes
08	(8) WISE0535-75	WFC3/IR	1	19-Jan-2011 21:02:42.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
09	(9) WISE1542+22	WFC3/IR	1	19-Jan-2011 21:02:47.0	yes
10	(10) WISE1738+27	WFC3/IR	1	19-Jan-2011 21:02:51.0	yes
11	(11) WISE2056+14	WFC3/IR	1	19-Jan-2011 21:02:56.0	yes
12	(12) WISE2232+38	WFC3/IR	1	19-Jan-2011 21:03:01.0	yes

12 Total Orbits Used

### **ABSTRACT**

We will use data from WISE to search for brown dwarfs colder than those currently known. The discovery and subsequent study of lowtemperature brown dwarfs will expand our knowledge of the lowmass end of the "stellar" mass function and of the physics of lowTeff, highpressure atmospheres, the latter of which is important in characterizing exoplanets. Spitzer is an important component in the WISE discovery process because it is the only observatory capable of providing deeper imaging in the same wavelength range used by WISE to select candidates (35 um). Our WISE selection process uses the W1 (3.4 um) and W2 (4.6 um) color to identify brown dwarf candidates; the resulting, red W1W2 colors are indicative of deep methane absorption at 3.3 um. For our coldest sources, which are the most important for deciphering the lowmass cutoff of star formation, these will be color limits because the candidate is undetected in W1. Spitzer can easily provide much deeper imaging and measure robust ch1ch2 colors, which are complementary to W1W2. The reddest of these sources will also be the faintest since they are expected to be the coldest ones in the list. For these, nearinfrared spectroscopy will be impossible from the ground, so we also ask for HST time with WFC3 to obtain lowresolution grism spectra over the 1.11.7 um range to confirm these as brown dwarfs.

## **OBSERVING DESCRIPTION**

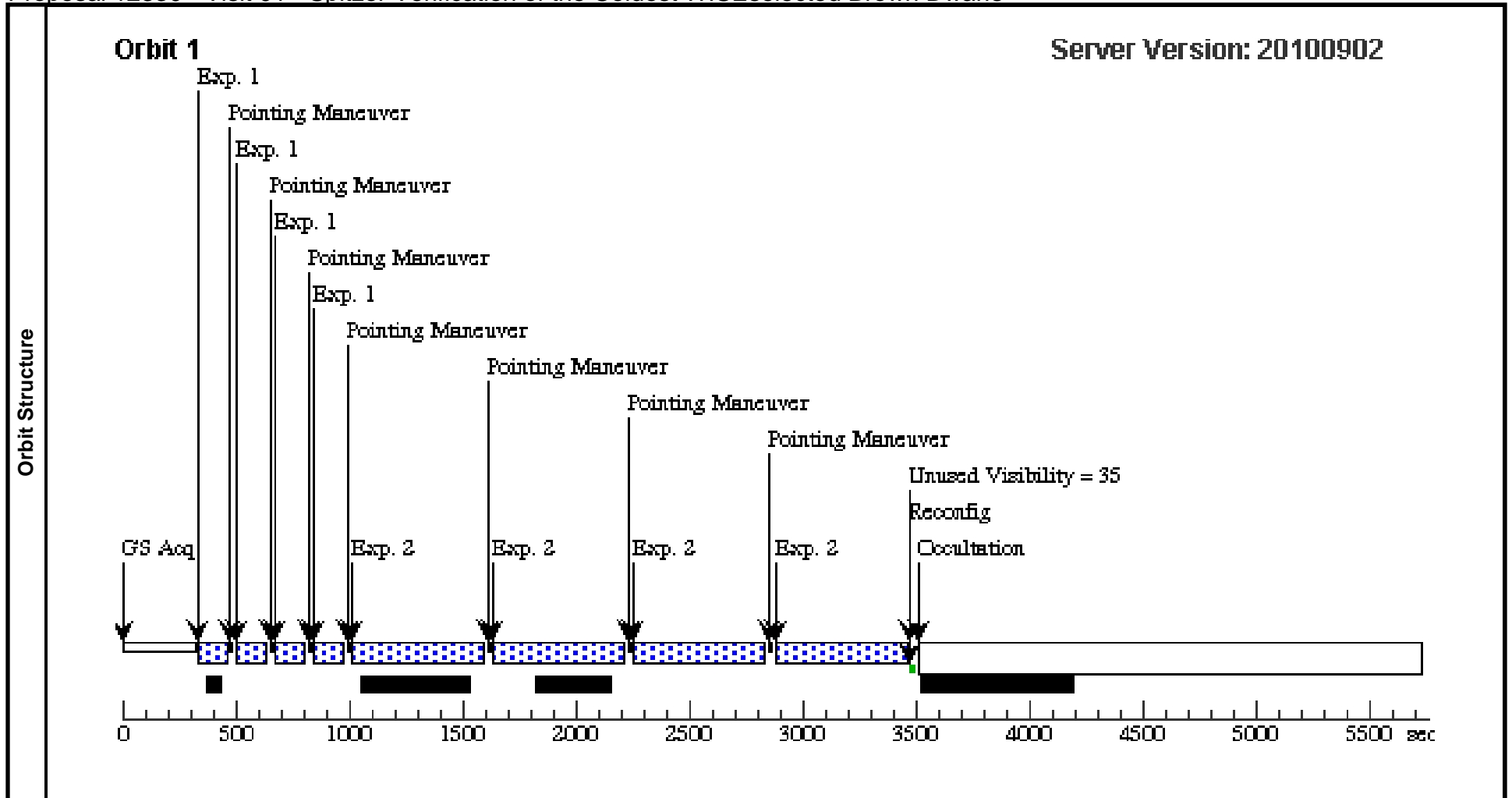
The G141 grism will be used to obtain  $R \sim 300$  spectra from 1.075-1.700  $\mu\text{m}$ , covering the critical J- and H-band portions of the spectrum containing telltale temperature-dependent bands of  $\text{CH}_4$ ,  $\text{H}_2\text{O}$ , and  $\text{NH}_3$ . Of critical importance to both the confirmation of the low temperature of these objects as well as the establishment of a Y dwarf class is the  $\text{NH}_3$  feature expected near 1.565  $\mu\text{m}$  (Delorme et al. 2008). Direct images taken with the F140W filter to accurately identify spectroscopic sources and to calibrate the wavelength scale will also provide highly accurate astrometry at a third epoch, the others being the two Spitzer epochs as the WISE positions will be poorly constrained due to the faintness of the sources. As a bonus, these direct HST images will also provide information on binarity of the sample, enabling us to establish a more accurate absolute magnitude vs. temperature scale for these coldest objects.

Using the HST Exposure Time Calculator for the IR channel of WFC3, we used observed spectra of two T dwarfs (the T8 2MASS 0415-0935 and the T9 ULAS 1335+1130) to approximate the SEDs of our typical sources. For a typical  $J \sim 20.0$  mag source, we require a direct, F140W image to establish the wavelength calibration for the grism image, to provide valuable astrometric information on our target, and to search for signs of binarity. SNR values of 200, adequate for excellent astrometry and for searching for companions down to  $J \sim 24.5$  mag (the  $\text{SNR}=5$  level), are possible in only 6m of total exposure time (spread over a four-point dither). For spectroscopy, we use the G141 grism that covers the 1.075-1.700  $\mu\text{m}$  range. A spectrum having an  $\text{SNR}=5$  at 1.65  $\mu\text{m}$ , which will enable us to determine the strength of the H-band  $\text{CH}_4$  absorption, will also provide  $\text{SNR}=3$  at 1.15  $\mu\text{m}$ , where we can measure the depth of the combination  $\text{CH}_4+\text{H}_2\text{O}$  band at J; the required integration time for this is 29m (again spread over a four-point dither). These direct images and their corresponding slitless grism images are paired in the dither sequence. Assuming overheads of six minutes for target acquisition and one minute each for the direct image and grism setups, the full dither pattern can be obtained in 50m of spacecraft time. A sample size of a dozen objects will provide the beginning of a statistical sample with which we can look for trends of J-H and ch1-ch2 colors with resulting spectral type.

Proposal 12330 - Visit 01 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:05 GMT 2011

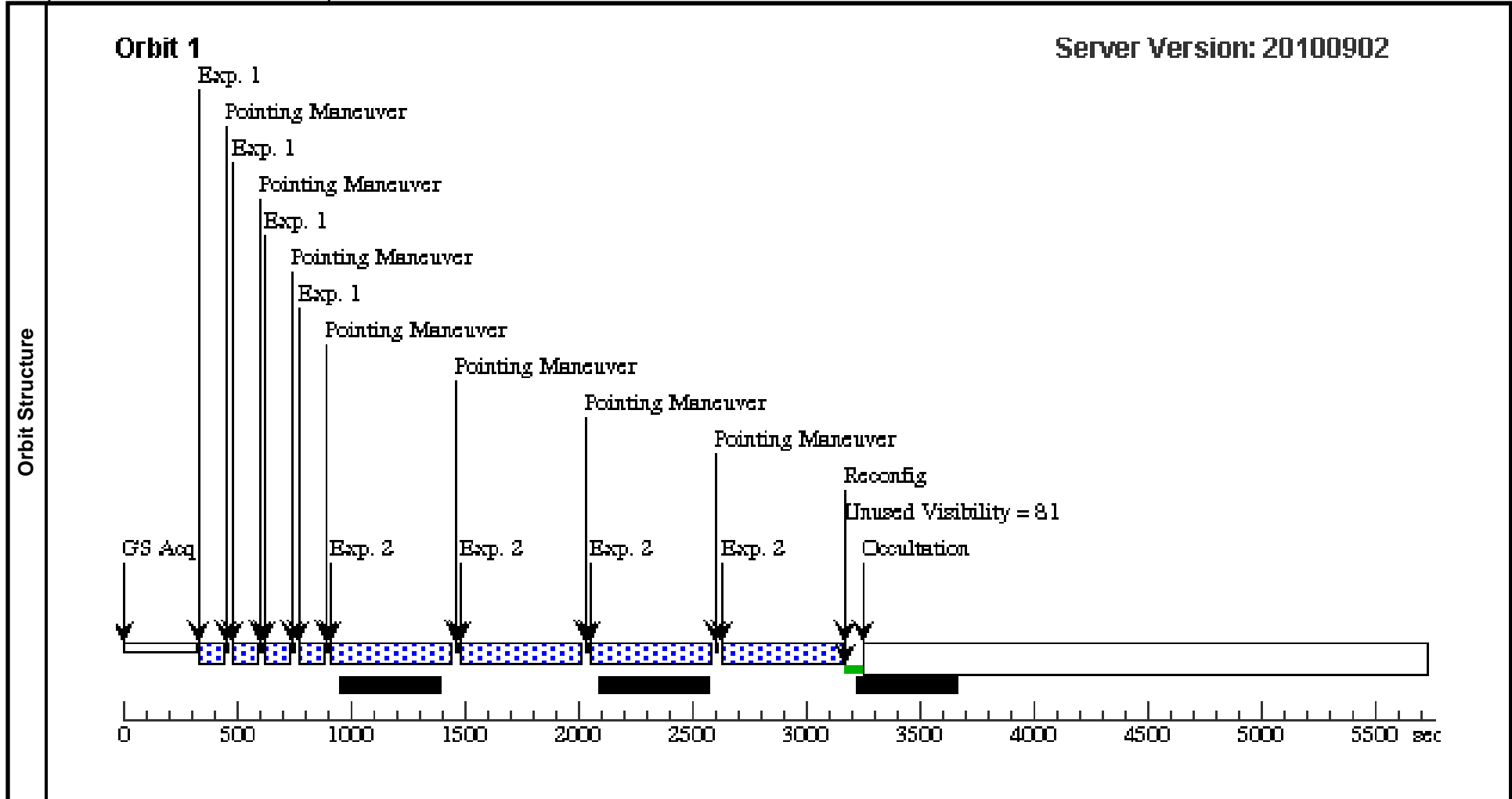
<b>Visit</b>	<b>Proposal 12330, Visit 01, scheduling</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 26D TO 51 D; ORIENT 98D TO 129 D; ORIENT 135D TO 140 D; ORIENT 146D TO 171 D; ORIENT 206D TO 231 D; ORIENT 278D TO 309 D; ORIENT 315D TO 320 D; ORIENT 326D TO 351 D Comments: WISE1405+55									
	<b>Patterns</b>	#	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
<b>Fixed Targets</b>	#	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(1)	WISE1405+55	RA: 14 05 18.4000 (211.3266667d) Dec: +55 34 21.46 (55.57263d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	#	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(1) WISE1405+55	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=5		Pattern 1, Exps 1-1 in Visit 01 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(1) WISE1405+55	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 2-2 in Visit 01 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 02 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:06 GMT 2011

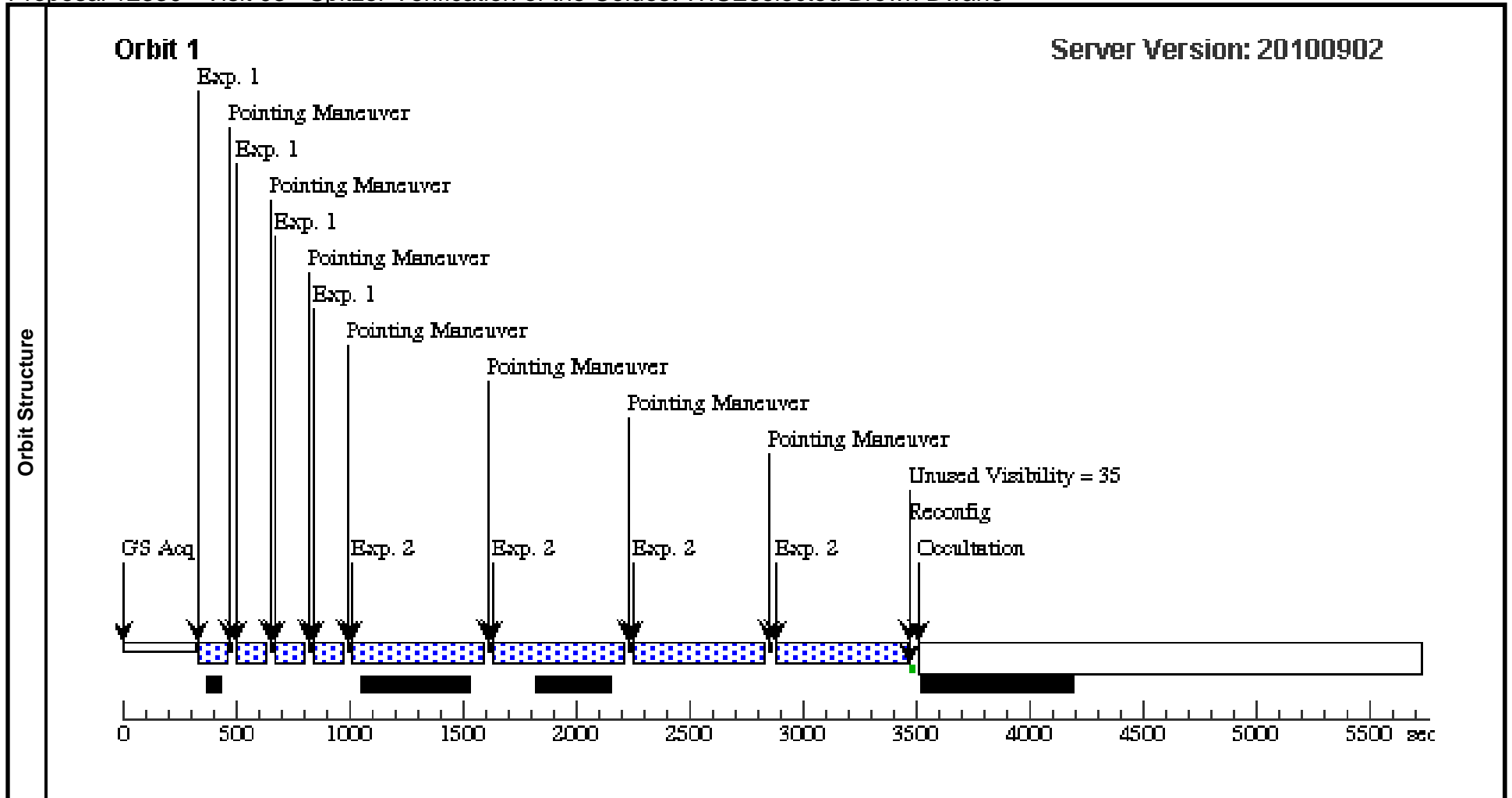
<b>Visit</b>	<b>Proposal 12330, Visit 02, scheduling</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 29.0D TO 32.0 D; ORIENT 108.0D TO 112.0 D; ORIENT 156.0D TO 165.0 D; ORIENT 209.0D TO 212.0 D; ORIENT 213.0D TO 215.0 D; ORIENT 288.0D TO 292.0 D; ORIENT 336.0D TO 345.0 D Comments: WISE1828+26									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>
(1)		Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655		Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false					(1), (2)	
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(2)	WISE1828+26	RA: 18 28 31.0900 (277.1295417d) Dec: +26 50 37.70 (26.84381d) Equinox: J2000				V=35./-5	Reference Frame: ICRS		
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(2) WISE1828+26	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4		Pattern 1, Exps 1-1 in Visit 02 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(2) WISE1828+26	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=11		Pattern 1, Exps 2-2 in Visit 02 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 03 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:06 GMT 2011

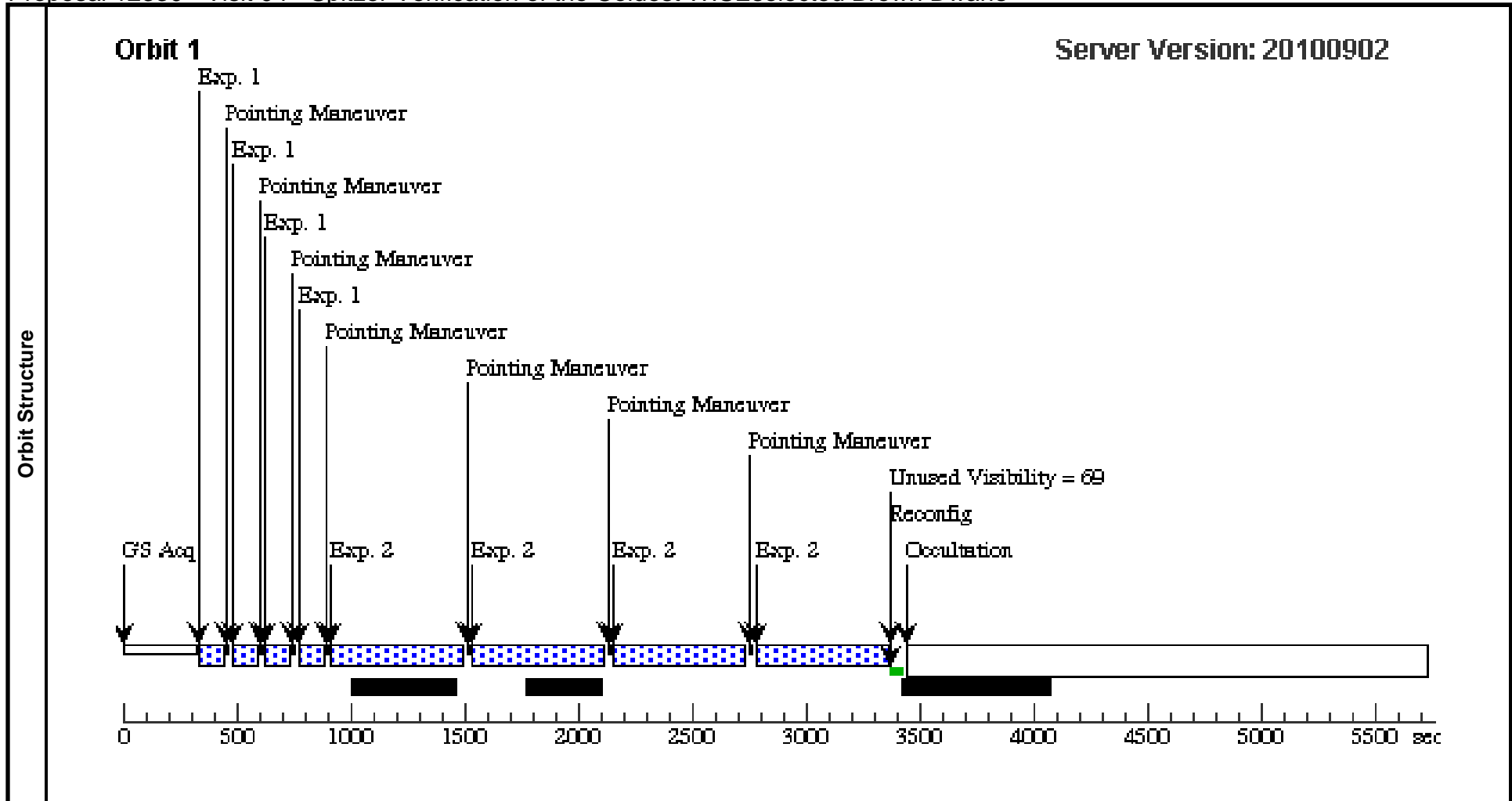
<b>Visit</b>	<b>Proposal 12330, Visit 03, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 60D TO 64 D; ORIENT 76D TO 85 D; ORIENT 113D TO 119 D; ORIENT 146D TO 152 D; ORIENT 240D TO 244 D; ORIENT 256D TO 265 D; ORIENT 293D TO 299 D; ORIENT 326D TO 332 D Comments: WISE0350-56									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(3)	WISE0350-56	RA: 03 50 0.3300 (57.5013750d) Dec: -56 58 30.02 (-56.97501d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(3) WISE0350-56	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=5		Pattern 1, Exps 1-1 in Visit 03 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(3) WISE0350-56	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 2-2 in Visit 03 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 04 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

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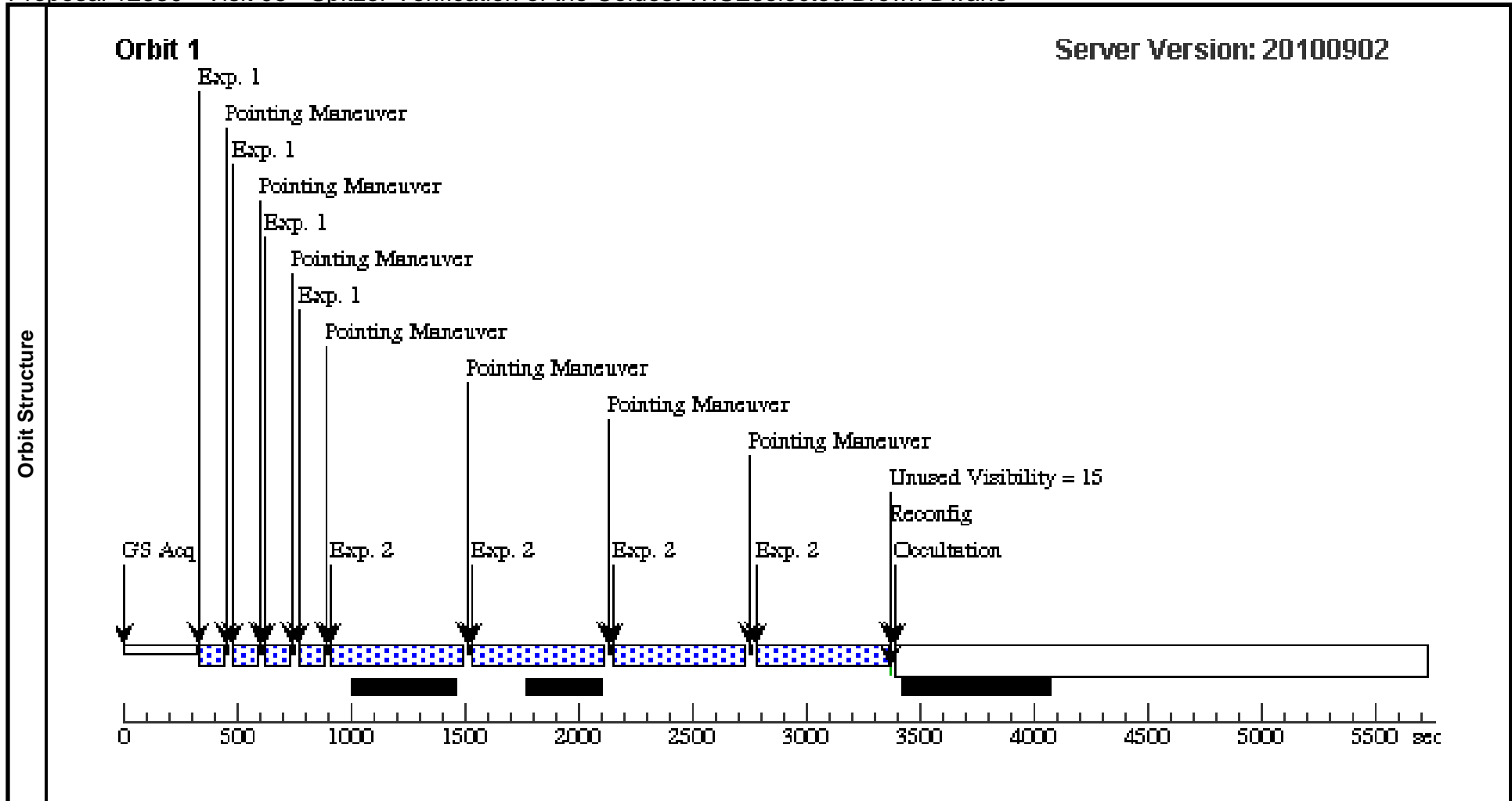
<b>Visit</b>	<b>Proposal 12330, Visit 04, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 9D TO 18 D; ORIENT 41D TO 46 D; ORIENT 64D TO 81 D; ORIENT 88D TO 92 D; ORIENT 114D TO 117 D; ORIENT 124D TO 127 D; ORIENT 189D TO 198 D; ORIENT 221D TO 226 D; ORIENT 244D TO 261 D; ORIENT 268D TO 272 D; ORIENT 294D TO 297 D; ORIENT 304D TO 307 D Comments: WISE0359-54									
	<b>Patterns</b>	#	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>
(1)		Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655		Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false					(1), (2)	
<b>Fixed Targets</b>	#	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>		<b>Miscellaneous</b>	
	(4)	WISE0359-54	RA: 03 59 34.1000 (59.8920833d) Dec: -54 01 54.13 (-54.03170d) Equinox: J2000				V=35./-5		Reference Frame: ICRS	
<b>Exposures</b>	#	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(4) WISE0359-54	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4		Pattern 1, Exps 1-1 in Visit 04 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(4) WISE0359-54	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 2-2 in Visit 04 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 05 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:07 GMT 2011

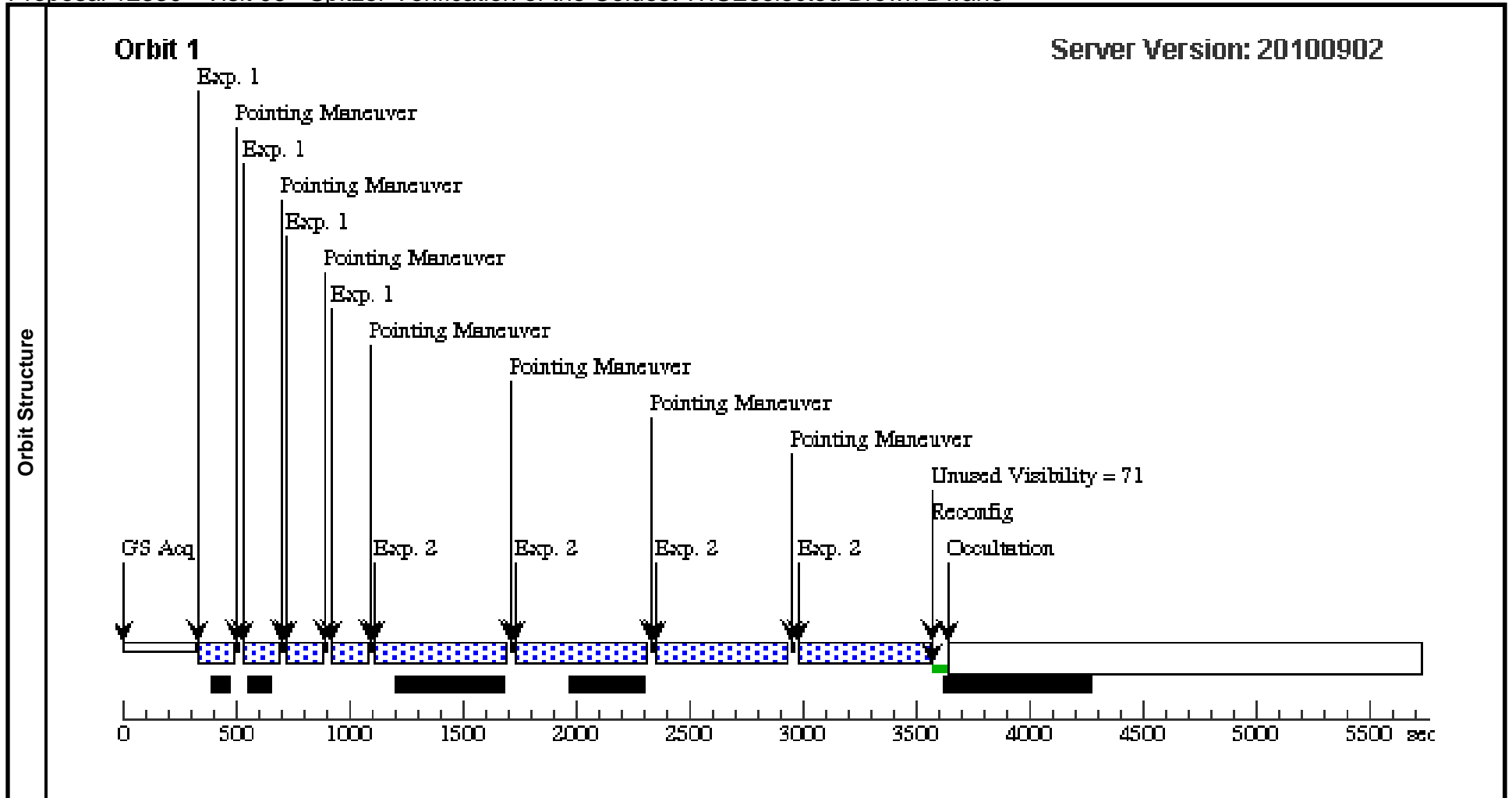
Visit	<b>Proposal 12330, Visit 05, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 20D TO 24 D; ORIENT 54D TO 61 D; ORIENT 70D TO 75 D; ORIENT 200D TO 204 D; ORIENT 234D TO 241 D; ORIENT 250D TO 255 D Comments: WISE1208-48									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	WISE1208-48	RA: 12 08 54.5000 (182.2270833d) Dec: -48 44 23.07 (-48.73974d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F140W imaging	(5) WISE1208-48	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4			Pattern 1, Exps 1-1 in Visit 05 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]
2	G141 spectroscopy	(5) WISE1208-48	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=12			Pattern 1, Exps 2-2 in Visit 05 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 06 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:07 GMT 2011

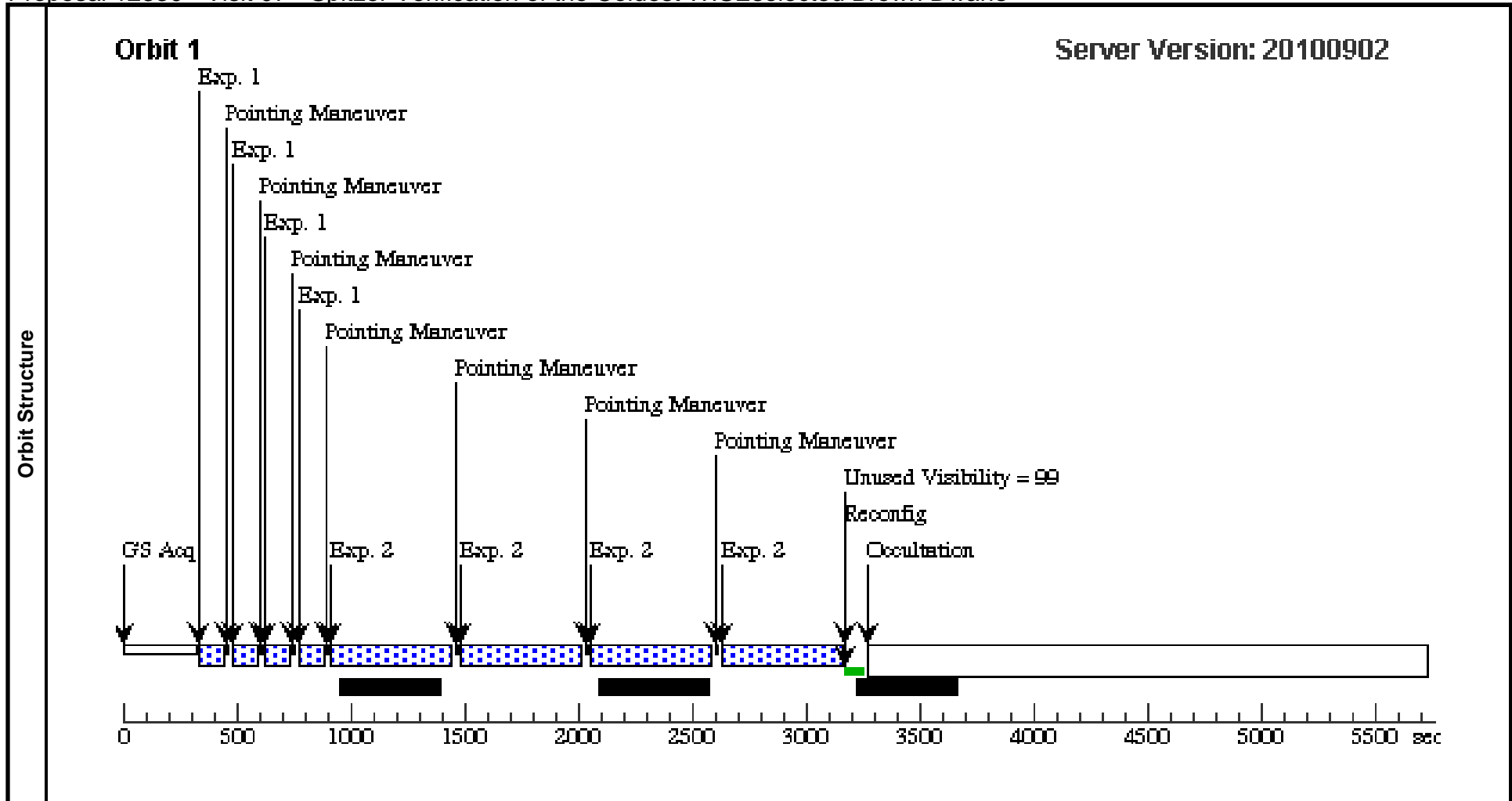
<b>Visit</b>	<b>Proposal 12330, Visit 06, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 19D TO 25 D; ORIENT 32D TO 35 D; ORIENT 42D TO 45 D; ORIENT 59D TO 62 D; ORIENT 147D TO 149 D; ORIENT 199D TO 205 D; ORIENT 212D TO 215 D; ORIENT 222D TO 225 D; ORIENT 239D TO 242 D; ORIENT 327D TO 329 D Comments: WISE1545-84									
	<b>Patterns</b>	#	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
<b>Fixed Targets</b>	#	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(6)	WISE1545-84	RA: 15 45 0.5300 (236.2522083d) Dec: -84 31 59.45 (-84.53318d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	#	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(6) WISE1545-84	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=6		Pattern 1, Exps 1-1 in Visit 06 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(6) WISE1545-84	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 2-2 in Visit 06 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 07 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:08 GMT 2011

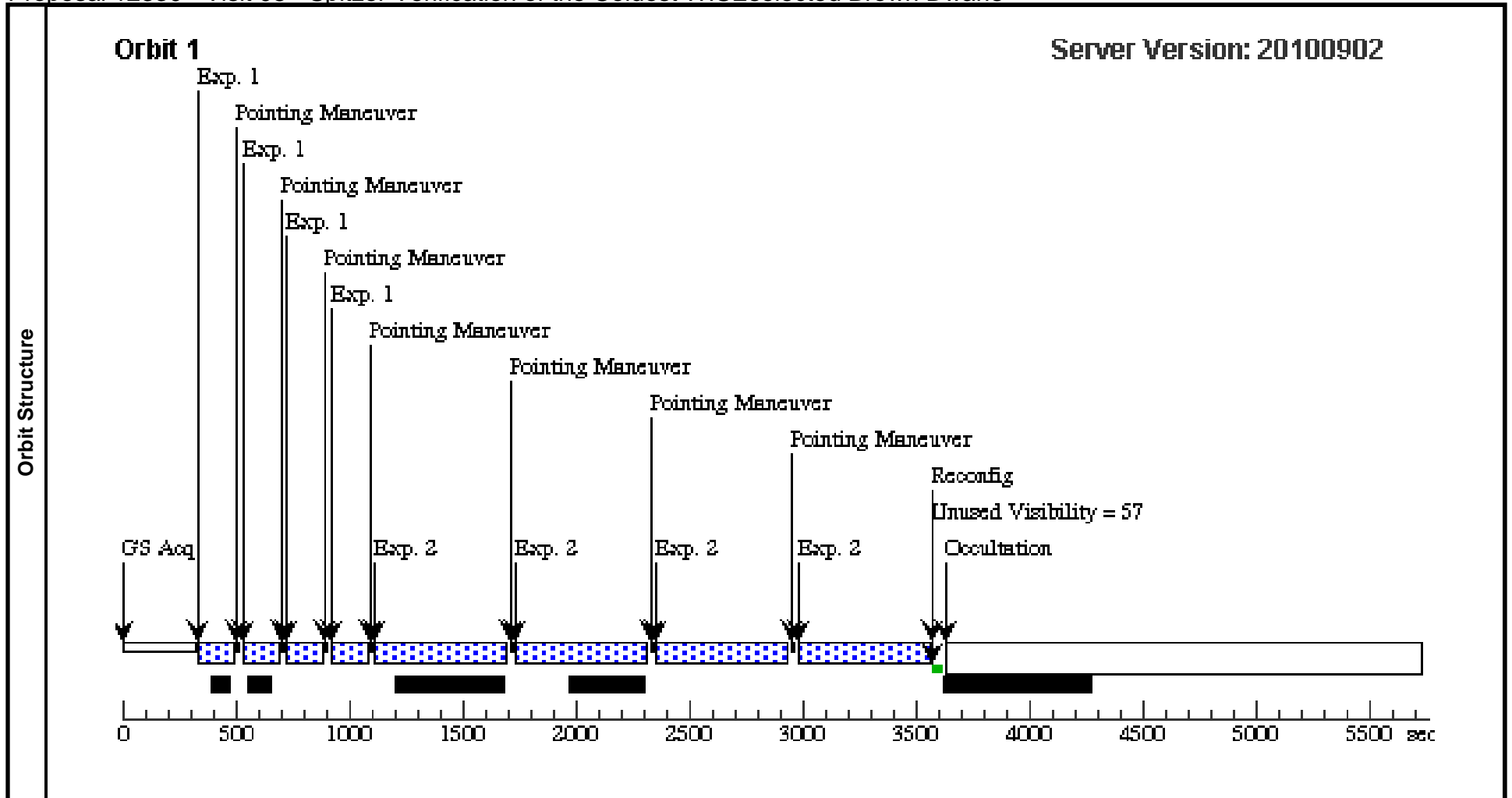
<b>Visit</b>	<b>Proposal 12330, Visit 07, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 26D TO 33 D; ORIENT 36D TO 40 D; ORIENT 42D TO 45 D; ORIENT 48D TO 55 D; ORIENT 60D TO 65 D; ORIENT 86D TO 88 D; ORIENT 105D TO 113 D; ORIENT 116D TO 120 D; ORIENT 122D TO 126 D; ORIENT 132D TO 134 D; ORIENT 141D TO 151 D; ORIENT 206D TO 213 D; ORIENT 216D TO 220 D; ORIENT 222D TO 225 D; ORIENT 228D TO 235 D; ORIENT 240D TO 245 D; ORIENT 266D TO 268 D; ORIENT 285D TO 293 D; ORIENT 296D TO 300 D; ORIENT 302D TO 306 D; ORIENT 312D TO 314 D; ORIENT 321D TO 331 D Comments: WISE1754+32									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>			<b>Secondary Pattern</b>			<b>Exposures</b>	
(1)		Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655			Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false			(1), (2)		
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(7)	WISE1754+32	RA: 17 54 43.9700 (268.6832083d) Dec: +32 33 32.10 (32.55892d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(7) WISE1754+32	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4		Pattern 1, Exps 1-1 in Visit 07 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(7) WISE1754+32	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=11		Pattern 1, Exps 2-2 in Visit 07 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 08 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:08 GMT 2011

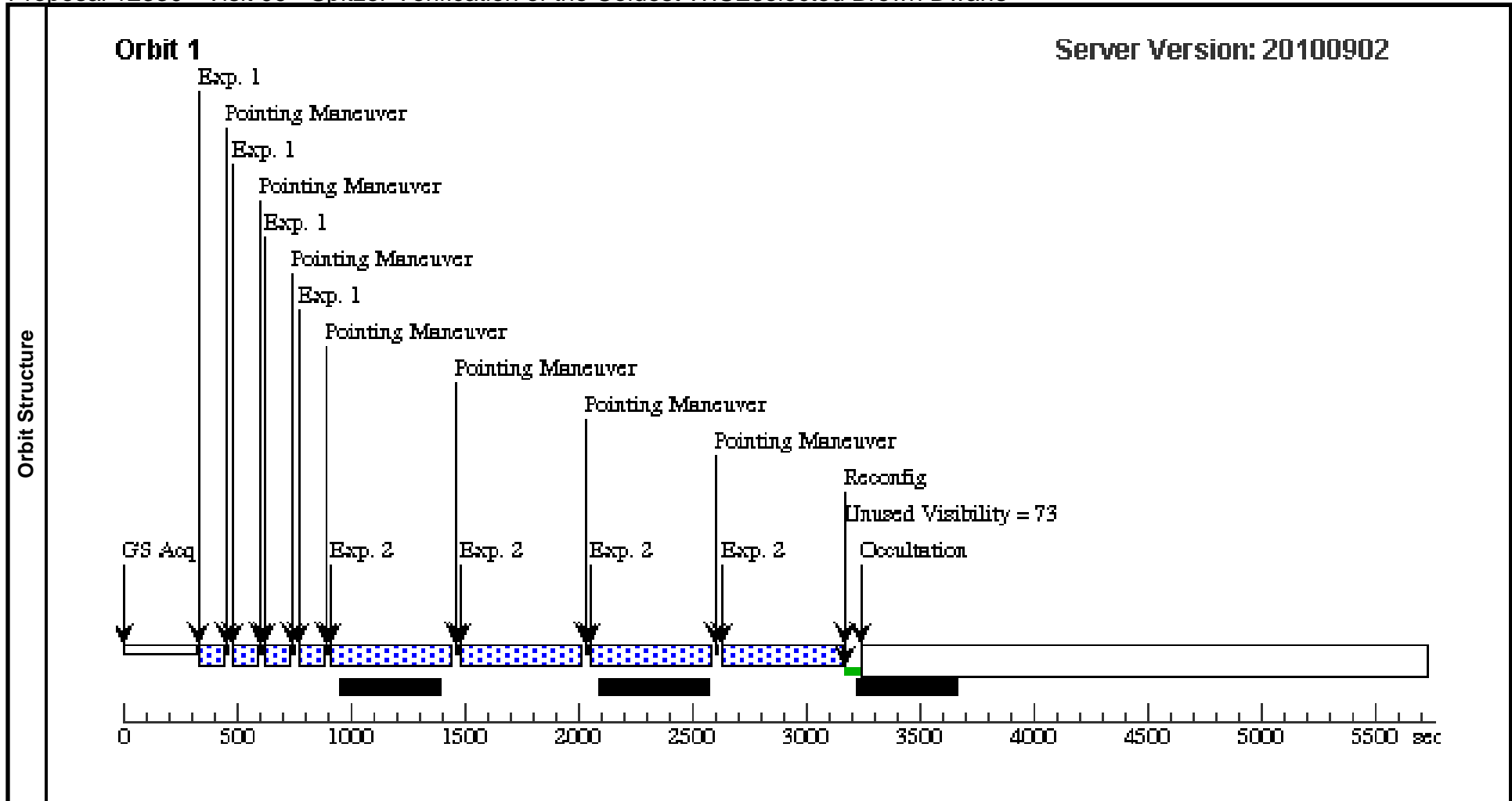
Visit	<b>Proposal 12330, Visit 08, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 16D TO 20 D; ORIENT 94D TO 97 D; ORIENT 196D TO 200 D; ORIENT 274D TO 277 D Comments: WISE0535-75									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(8)	WISE0535-75	RA: 05 35 16.8100 (83.8200417d) Dec: -75 00 25.27 (-75.00702d) Equinox: J2000		V=35.+/-5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F140W imaging	(8) WISE0535-75	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=6			Pattern 1, Exps 1-1 in Visit 08 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]
2	G141 spectroscopy	(8) WISE0535-75	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=12			Pattern 1, Exps 2-2 in Visit 08 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 09 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:08 GMT 2011

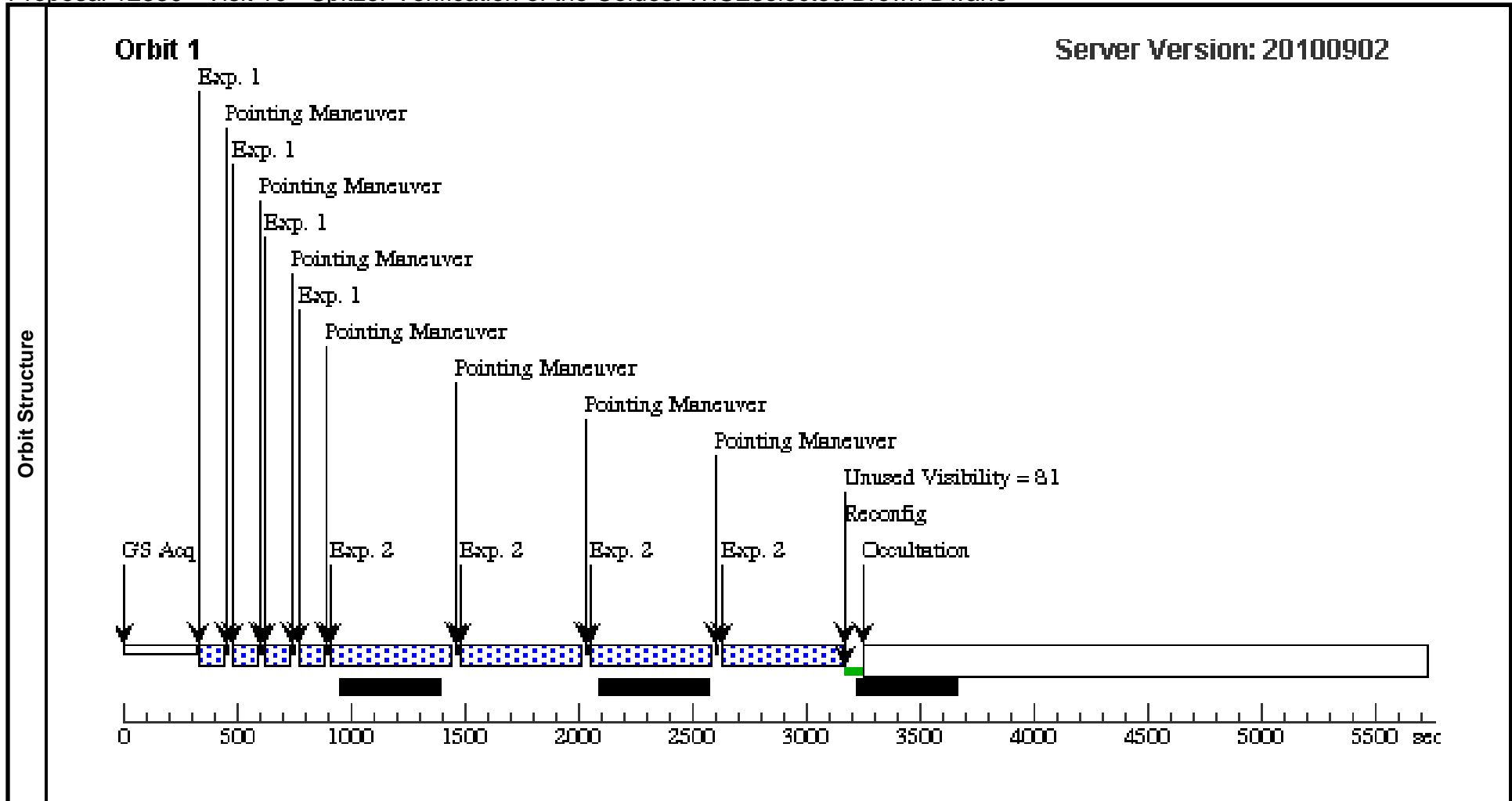
<b>Visit</b>	<b>Proposal 12330, Visit 09, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 35D TO 49 D; ORIENT 56D TO 67 D; ORIENT 104D TO 107 D; ORIENT 115D TO 118 D; ORIENT 120D TO 125 D; ORIENT 131D TO 136 D; ORIENT 139D TO 141 D; ORIENT 146D TO 154 D; ORIENT 215D TO 229 D; ORIENT 236D TO 247 D; ORIENT 284D TO 287 D; ORIENT 295D TO 298 D; ORIENT 300D TO 305 D; ORIENT 311D TO 316 D; ORIENT 319D TO 321 D; ORIENT 326D TO 334 D Comments: WISE1542+22									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false	(1), (2)						
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(9)	WISE1542+22	RA: 15 42 13.9500 (235.5581250d) Dec: +22 30 5.40 (22.50150d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(9) WISE1542+22	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4		Pattern 1, Exps 1-1 in Visit 09 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(9) WISE1542+22	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=11		Pattern 1, Exps 2-2 in Visit 09 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 10 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:09 GMT 2011

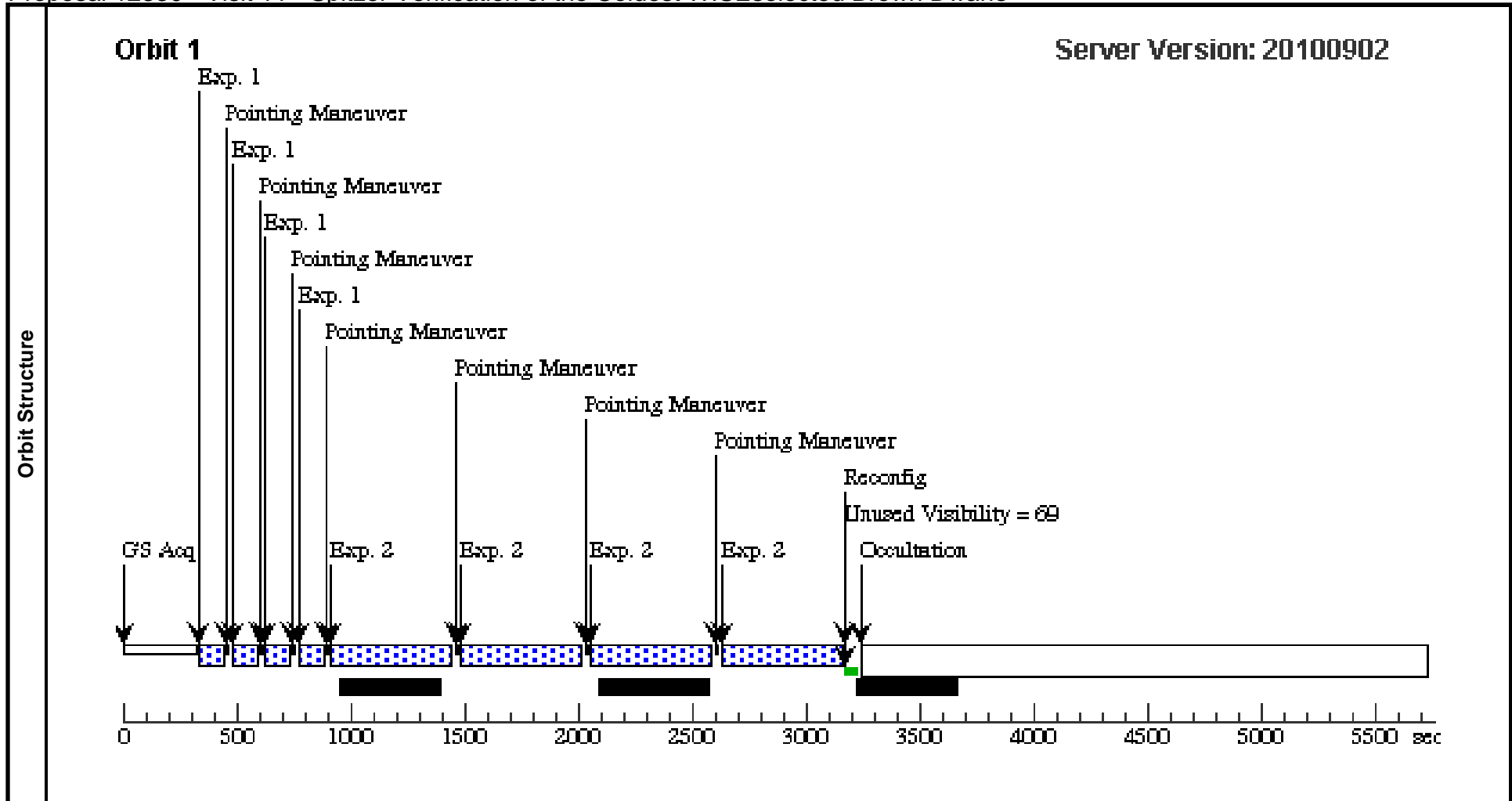
Visit	<b>Proposal 12330, Visit 10, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 30D TO 36 D; ORIENT 40D TO 49 D; ORIENT 87D TO 90 D; ORIENT 98D TO 103 D; ORIENT 119D TO 121 D; ORIENT 122D TO 125 D; ORIENT 136D TO 139 D; ORIENT 210D TO 216 D; ORIENT 220D TO 229 D; ORIENT 267D TO 270 D; ORIENT 278D TO 283 D; ORIENT 299D TO 301 D; ORIENT 302D TO 305 D; ORIENT 316D TO 319 D Comments: WISE1738+27									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(10)	WISE1738+27	RA: 17 38 35.5400 (264.6480833d) Dec: +27 32 59.13 (27.54976d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F140W imaging	(10) WISE1738+27	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4		Pattern 1, Exps 1-1 in Visit 10 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(10) WISE1738+27	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=11		Pattern 1, Exps 2-2 in Visit 10 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 11 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:09 GMT 2011

<b>Visit</b>	<b>Proposal 12330, Visit 11, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 2D TO 4 D; ORIENT 50D TO 56 D; ORIENT 75D TO 77 D; ORIENT 127D TO 139 D; ORIENT 141D TO 149 D; ORIENT 173D TO 176 D; ORIENT 182D TO 184 D; ORIENT 230D TO 236 D; ORIENT 255D TO 257 D; ORIENT 307D TO 319 D; ORIENT 322D TO 329 D; ORIENT 353D TO 356 D Comments: WISE2056+14									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>					
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(11)	WISE2056+14	RA: 20 56 28.9000 (314.1204167d) Dec: +14 59 53.33 (14.99815d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(11) WISE2056+14	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=4		Pattern 1, Exps 1-1 in Visit 11 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	G141 spectroscopy	(11) WISE2056+14	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=11		Pattern 1, Exps 2-2 in Visit 11 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]



Proposal 12330 - Visit 12 - Spitzer Verification of the Coldest WISEselected Brown Dwarfs

Thu Jan 20 02:03:09 GMT 2011

<b>Visit</b>	<b>Proposal 12330, Visit 12, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR Special Requirements: ORIENT 17D TO 20 D; ORIENT 40D TO 46 D; ORIENT 78D TO 83 D; ORIENT 97D TO 100 D; ORIENT 107D TO 113 D; ORIENT 116D TO 121 D; ORIENT 127D TO 130 D; ORIENT 132D TO 137 D; ORIENT 197D TO 200 D; ORIENT 220D TO 226 D; ORIENT 258D TO 263 D; ORIENT 277D TO 280 D; ORIENT 287D TO 293 D; ORIENT 296D TO 301 D; ORIENT 307D TO 310 D; ORIENT 312D TO 317 D Comments: WISE2232+38									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>					
(1)		Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=5.725 Line Spacing=3.655	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(12)	WISE2232+38	RA: 22 32 4.7500 (338.0197917d) Dec: +38 47 3.72 (38.78437d) Equinox: J2000		V=35./-5	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	F140W imaging	(12) WISE2232+38	WFC3/IR, MULTIACCUM, G141-REF	F140W	SAMP-SEQ=SPARS 25; NSAMP=5		Pattern 1, Exps 1-1 in Visit 12 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	G141 spectroscopy	(12) WISE2232+38	WFC3/IR, MULTIACCUM, IR	G141	SAMP-SEQ=SPARS 50; NSAMP=11		Pattern 1, Exps 2-2 in Visit 12 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]	

