



12815 - Photometry of the Coldest Benchmark Brown Dwarf

Cycle: 20, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) WD0806-661B	WFC3/IR	2	05-Jul-2012 21:00:59.0	yes
02	(1) WD0806-661B	WFC3/IR	2	05-Jul-2012 21:01:09.0	yes
03	(1) WD0806-661B	WFC3/IR	2	05-Jul-2012 21:01:16.0	yes

6 Total Orbits Used

ABSTRACT

In 2011, we used images from the Spitzer Space Telescope to discover the coldest directly imaged companion to a nearby star (300-345 K). In addition to breaking new ground in terms of temperature, this companion is one of a small number of benchmark brown dwarfs whose ages and distances are known via their primaries and thus can provide unusually stringent tests of theoretical models of substellar objects. However, few data are available for this companion for comparison to the models; we have measured photometry from two Spitzer bands, but it has not been detected at near-IR wavelengths with the largest ground-based telescopes ($J > 23.9$). Therefore, we propose to use WFC3 to obtain deeper near-IR images of this object so that we can better test model atmospheres in a previously unexplored regime of temperature.

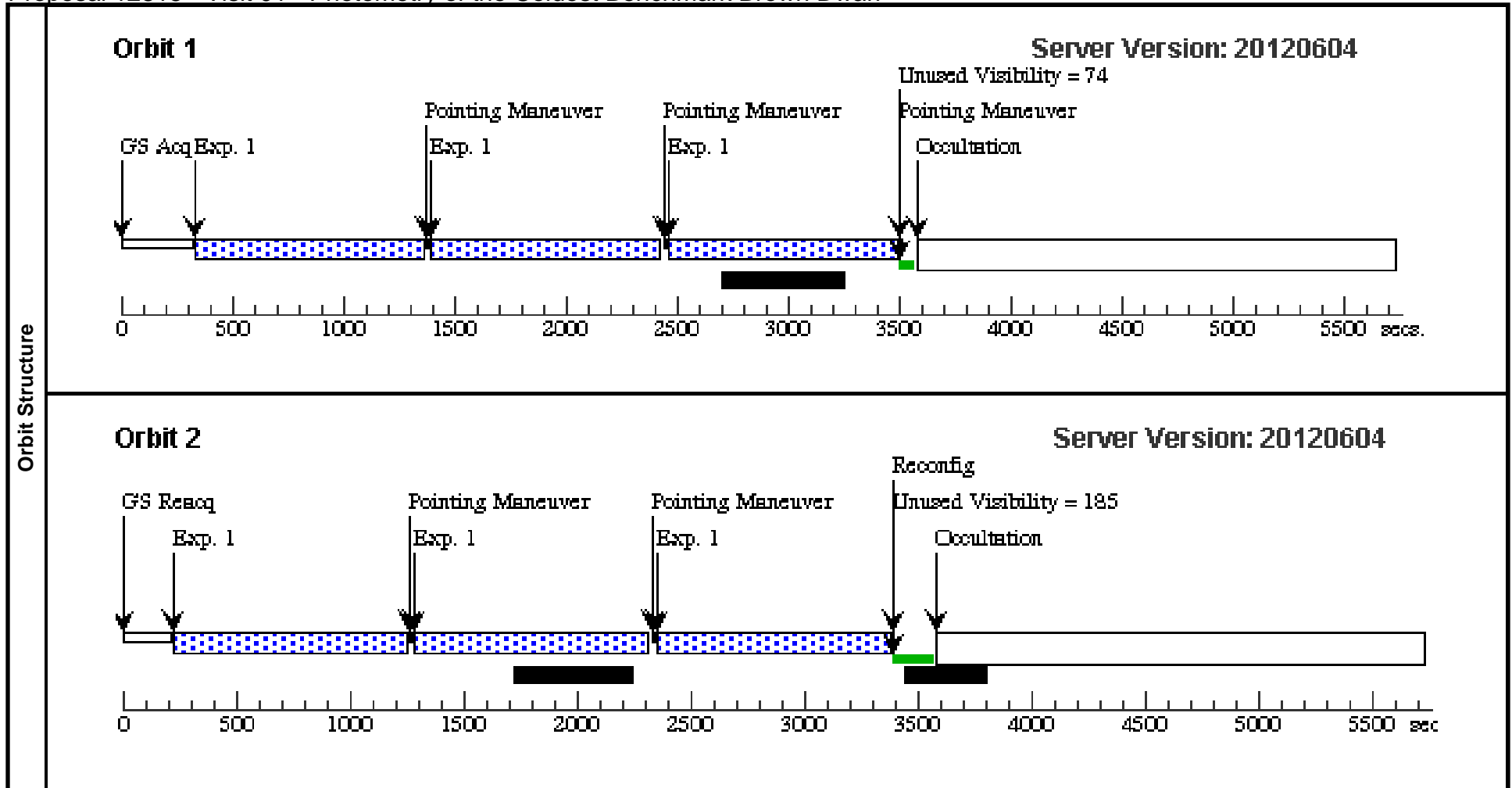
OBSERVING DESCRIPTION

This program consists of WFC3/IR images in F110W of a single faint point source during six orbits. The observations have been designed to maximize the total exposure time, optimize the spatial resolution, and provide sufficient flexibility for scheduling. The images will be obtained through three identical two-orbit visits. In each orbit, one exposure (SPARS100, NSAMP=11, 1000 sec) will be collected at each position in a three-point dither pattern (WFC3-IR-DITHER-LINE-3PT). In each visit, the dither patterns in the two orbits will be offset by 3.5 pixels along the x-axis of the array.

Proposal 12815 - Visit 01 - Photometry of the Coldest Benchmark Brown Dwarf

Fri Jul 06 01:01:23 GMT 2012

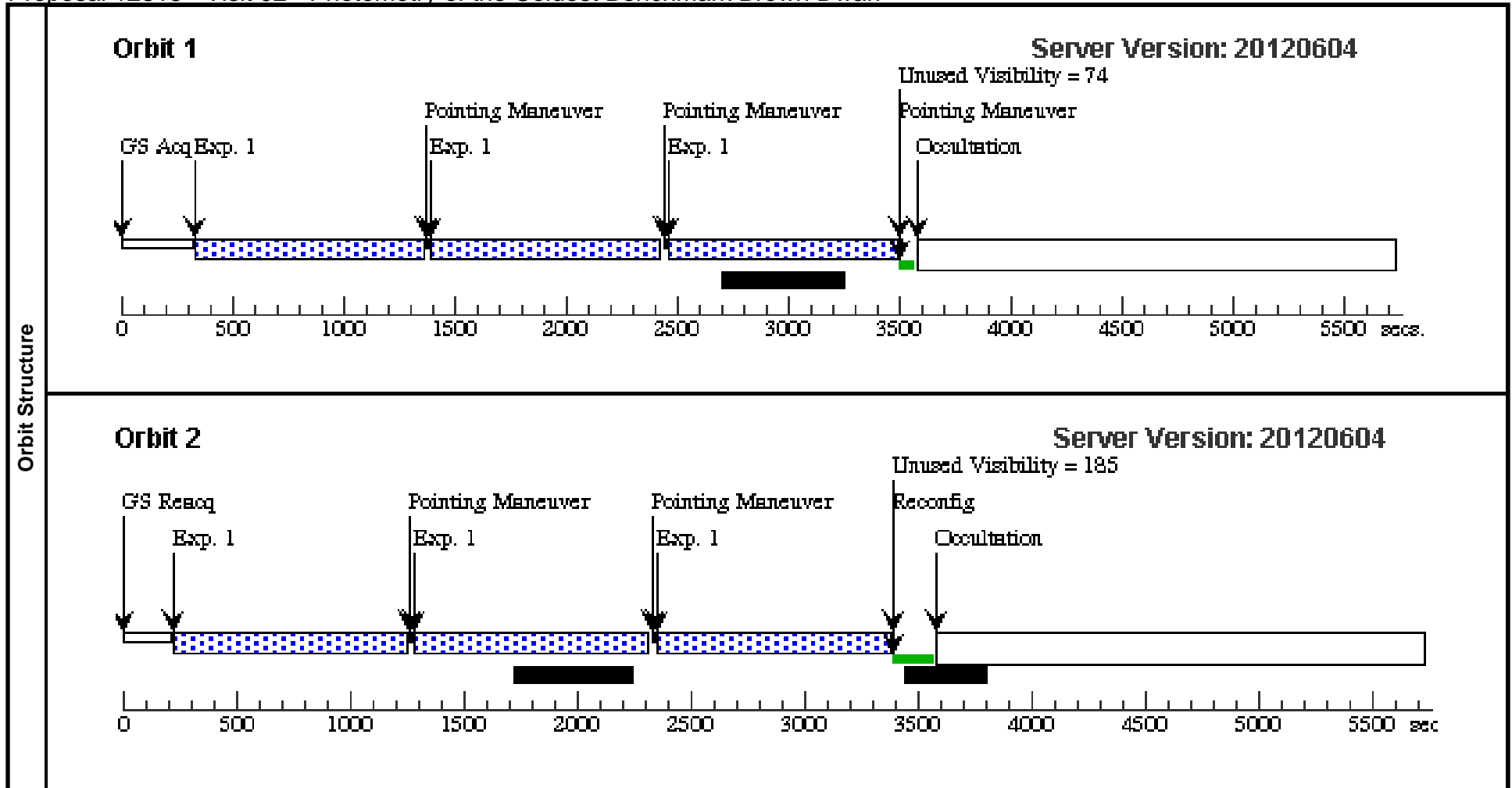
Visit	Proposal 12815, Visit 01 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.4725 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false	(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	WD0806-661B	RA: 08 07 15.1900 (121.8132917d) Dec: -66 18 51.20 (-66.31422d) Equinox: J2000	Proper Motion RA: +0.34 arcsec/yr Proper Motion Dec: -0.29 arcsec/yr Parallax: 0.052" Epoch of Position: 2009.6	V=35	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) WD0806-661B	WFC3/IR, MULTIACCUM, IR	F110W	NSAMP=11; SAMP-SEQ=SPAR S100			Pattern 1, Exps 1-1 i n Visit 01 (1)	[=>(Pattern 1,1)] [=>(Pattern 1,2)] [=>(Pattern 1,3)]
									[=>(Pattern 2,1)] [=>(Pattern 2,2)] [=>(Pattern 2,3)]	[2]



Proposal 12815 - Visit 02 - Photometry of the Coldest Benchmark Brown Dwarf

Fri Jul 06 01:01:26 GMT 2012

Visit	Proposal 12815, Visit 02 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.4725 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false	(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	WD0806-661B	RA: 08 07 15.1900 (121.8132917d) Dec: -66 18 51.20 (-66.31422d) Equinox: J2000	Proper Motion RA: +0.34 arcsec/yr Proper Motion Dec: -0.29 arcsec/yr Parallax: 0.052" Epoch of Position: 2009.6	V=35	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) WD0806-661B	WFC3/IR, MULTIACCUM, IR	F110W	NSAMP=11; SAMP-SEQ=SPAR S100			Pattern 1, Exps 1-1 i n Visit 02 (1)	[=>(Pattern 1,1)] [=>(Pattern 1,2)] [=>(Pattern 1,3)]
									[=>(Pattern 2,1)] [=>(Pattern 2,2)] [=>(Pattern 2,3)]	[2]



Proposal 12815 - Visit 03 - Photometry of the Coldest Benchmark Brown Dwarf

Fri Jul 06 01:01:28 GMT 2012

Visit	Proposal 12815, Visit 03 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.4725 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false	(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	WD0806-661B	RA: 08 07 15.1900 (121.8132917d) Dec: -66 18 51.20 (-66.31422d) Equinox: J2000	Proper Motion RA: +0.34 arcsec/yr Proper Motion Dec: -0.29 arcsec/yr Parallax: 0.052" Epoch of Position: 2009.6	V=35	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) WD0806-661B	WFC3/IR, MULTIACCUM, IR	F110W	NSAMP=11; SAMP-SEQ=SPAR S100			Pattern 1, Exps 1-1 i n Visit 03 (1)	[=>(Pattern 1,1)] [=>(Pattern 1,2)] [=>(Pattern 1,3)]
									[=>(Pattern 2,1)] [=>(Pattern 2,2)] [=>(Pattern 2,3)]	[2]

