



16002 - The Giant Hiding in Our Backyard: The Nearby Spiral Starburst Galaxy IC 342

Cycle: 27, 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) IC-342-FIELD-1-CENTER (2) IC-342-FIELD-2-NW (3) IC-342-FIELD-3-W	ACS/WFC	3	20-Sep-2019 10:00:39.0	yes
02	(4) IC-342-FIELD-4-SW (5) IC-342-FIELD-5-SE	ACS/WFC	2	20-Sep-2019 10:00:42.0	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>
03	(6) IC-342-FIELD-6-E (7) IC-342-FIELD-7-NE	ACS/WFC	2	20-Sep-2019 10:00:44.0	yes

7 Total Orbits Used

ABSTRACT

We propose a deep survey of the nearby, highly star-forming, grand design spiral galaxy, IC 342. These observations will uniformly map the entire galactic disk to X-ray luminosities of $1-5e36$ erg/s, tripling the number of X-ray sources known. Using joint optical (HST, LBT) observations, we will classify these sources on the basis of their donor stars, derive the X-ray luminosity functions and measure the formation rate of different X-ray binary sub-classes. With such a large sample of binaries (~ 100 high-mass and ~ 50 low-mass), we will also explore radial variations and scaling relations between our source properties (e.g., X-ray luminosity functions) and the age/metallicity in the stellar populations.

OBSERVING DESCRIPTION

The goal of this program is to match HST and Chandra observations to identify the optical counterparts to the X-ray sources, thus enabling us to study the underlying source populations in more detail. We will map the inner sections of IC342 in 7 pointings, each pointing in 1 orbit split evenly between F435W and F606W. We have specified that this be done in three visits: 2 orbits, 2 orbits, and 3 orbits each (not exceeding the recommended 2-3 orbits per visit). Grouping more than one pointing within a visit is useful for improved assessment of the relative astrometry. We use a 3-point dither pattern to better sample the PSF; fill in the chip gap; and reject cosmic rays (in the chip gap too), hot pixels, and bad columns. Drizzled images will achieve depths of 25 mag (from 342 second individual exposures), allowing us to identify all O-stars and early-type B-stars (including the predominant Be X-ray binary population with B2-B3 stars). For better observing feasibility and simplicity, we do not place a constraint on the roll angle, ensuring some field overlap; the field overlap is very helpful for the alignment of our images to one another. CTE mitigation, especially with the high galactic background of IC342, is not needed. Reading through the reduced gyro mode presentations did not reveal any impacts specific to our observations.

Proposal 16002 - Visit 01 - The Giant Hiding in Our Backyard: The Nearby Spiral Starburst Galaxy IC 342

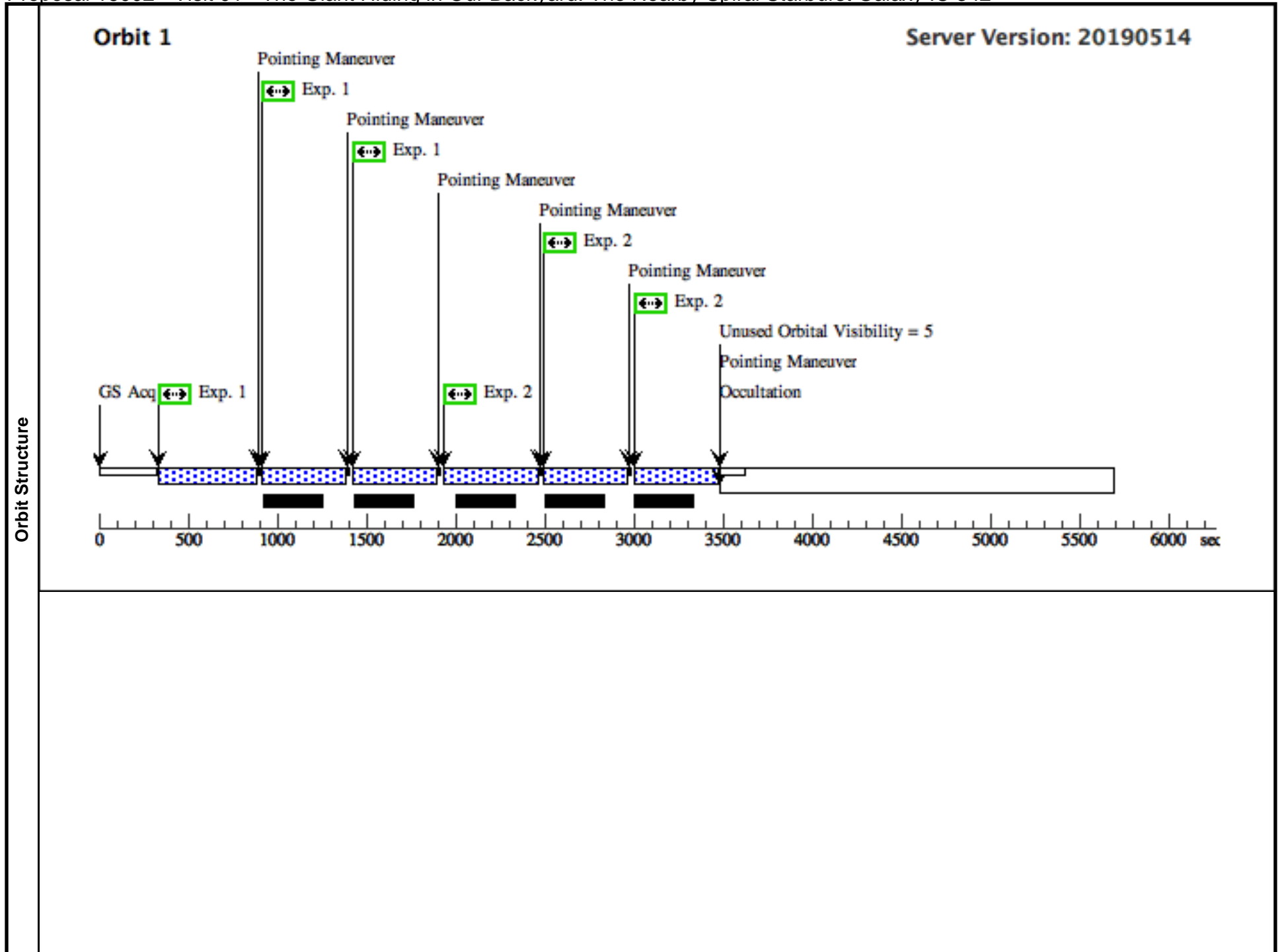
Fri Sep 20 14:00:44 GMT 2019

Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=true		(1), (2), (3), (4), (5), (6)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	
	(1)	IC-342-FIELD-1-CENTER	RA: 03 46 48.5140 (56.7021417d) Dec: +68 05 45.98 (68.09611d) Equinox: J2000	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD	
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]						
	(2)	IC-342-FIELD-2-NW	RA: 03 46 32.4000 (56.6350000d) Dec: +68 08 21.90 (68.13942d) Equinox: J2000	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD	
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]							
(3)	IC-342-FIELD-3-W	RA: 03 46 16.3000 (56.5679167d) Dec: +68 05 46.00 (68.09611d) Equinox: J2000	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD		
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]							

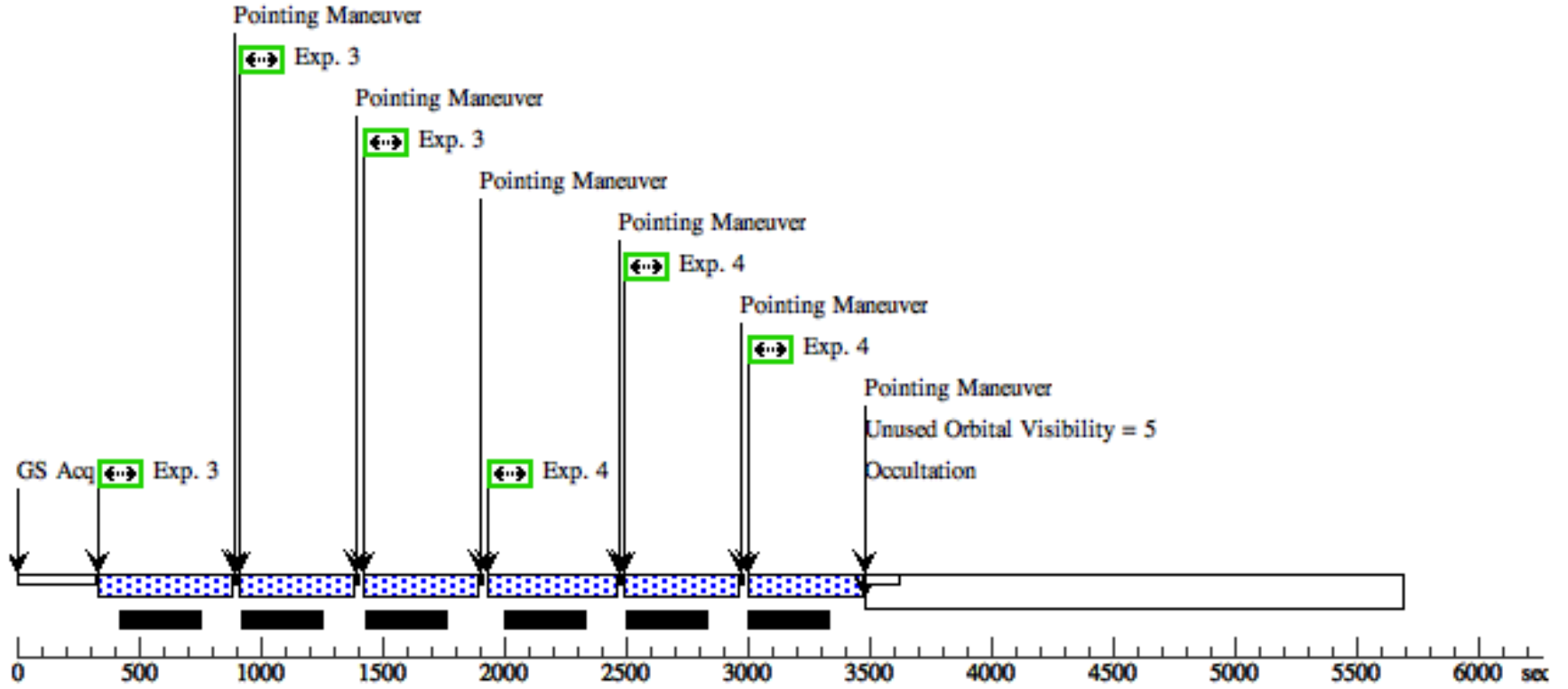
Proposal 16002 - Visit 01 - The Giant Hiding in Our Backyard: The Nearby Spiral Starburst Galaxy IC 342

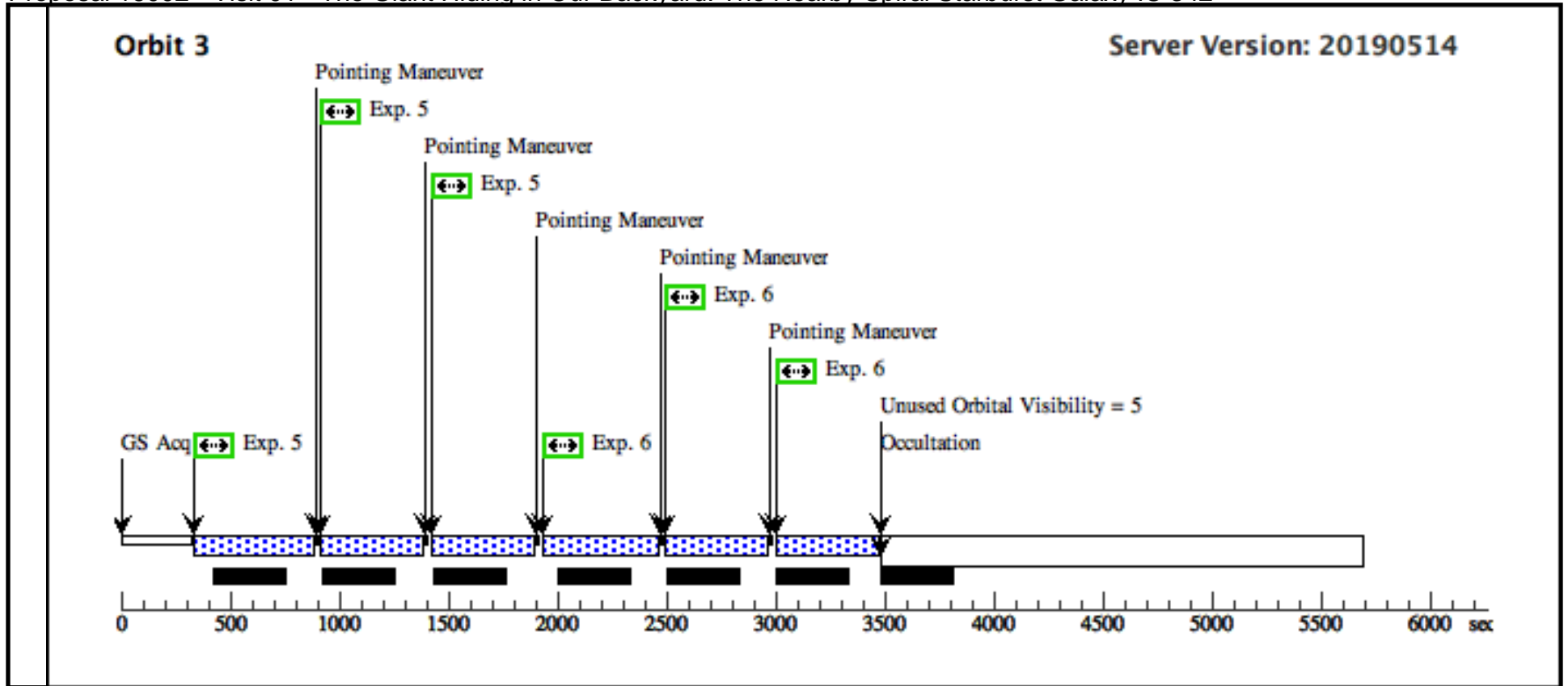
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) IC-342-FIELD-1-CENTER	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 1-1 in Visit 01 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2		(1) IC-342-FIELD-1-CENTER	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 2-2 in Visit 01 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	3		(2) IC-342-FIELD-2-NW	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 3-3 in Visit 01 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[2]
	4		(2) IC-342-FIELD-2-NW	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 4-4 in Visit 01 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[2]
	5		(3) IC-342-FIELD-3-W	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 5-5 in Visit 01 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[3]
	6		(3) IC-342-FIELD-3-W	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 6-6 in Visit 01 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[3]



Orbit 2

Server Version: 20190514

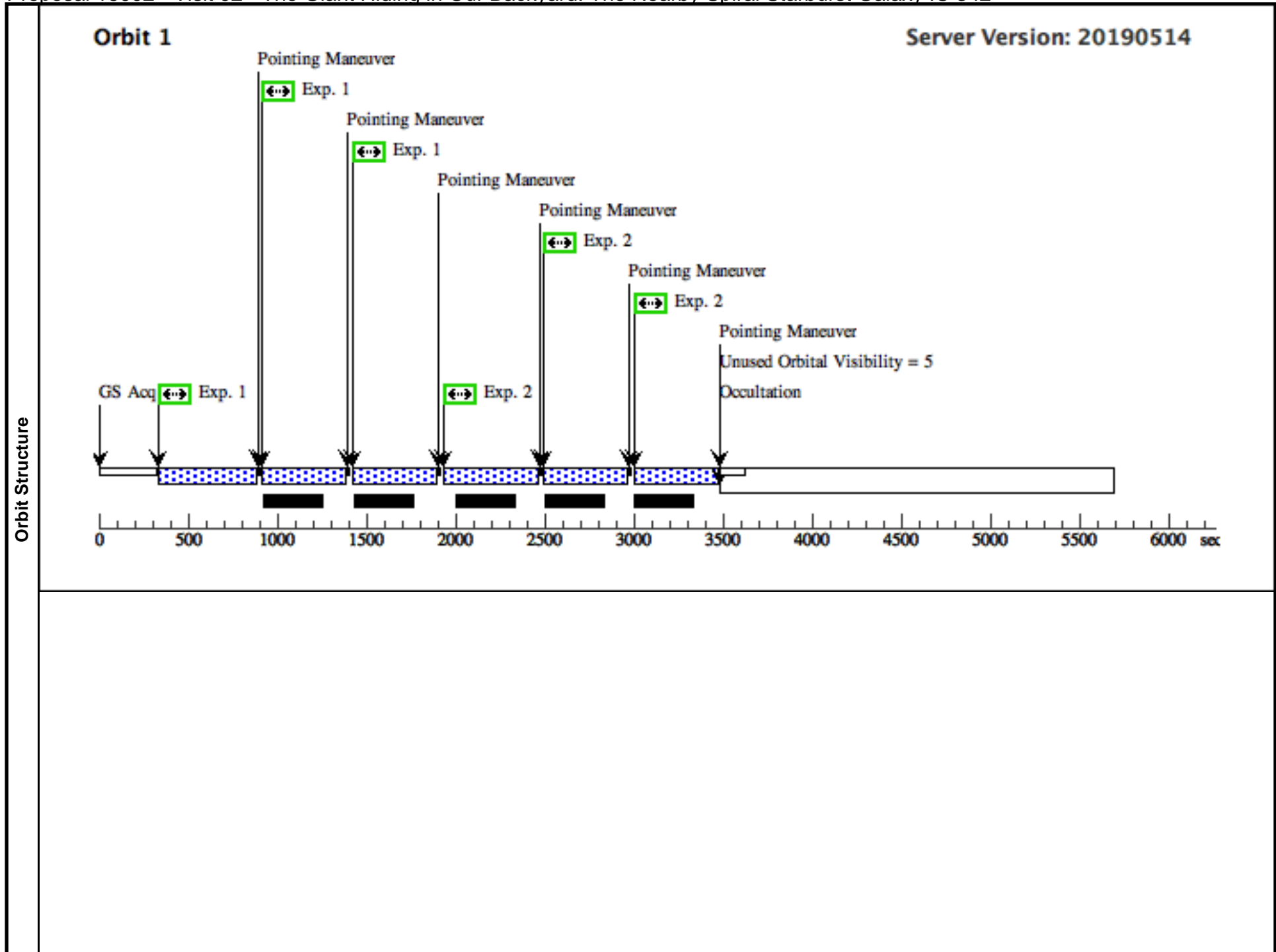


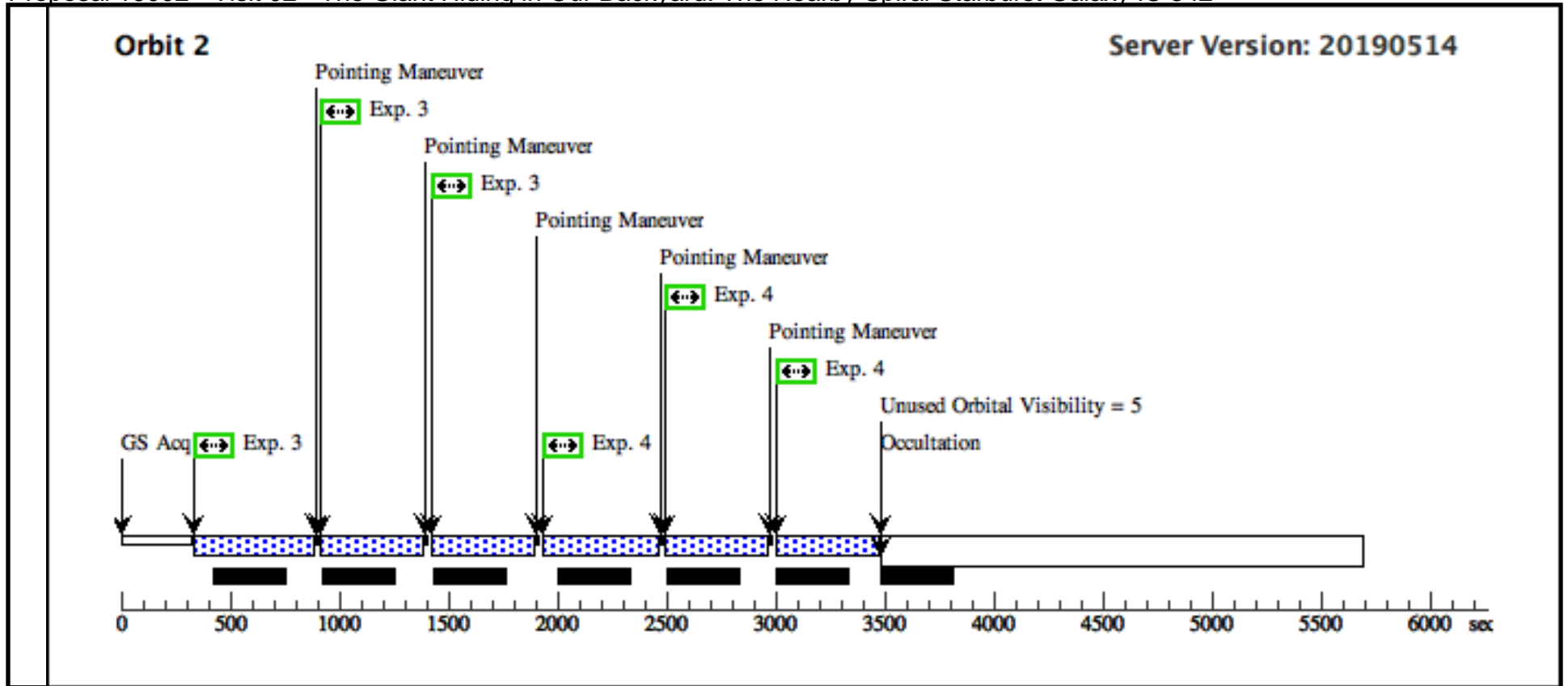


Proposal 16002 - Visit 02 - The Giant Hiding in Our Backyard: The Nearby Spiral Starburst Galaxy IC 342

Fri Sep 20 14:00:45 GMT 2019

Visit	Proposal 16002, Visit 02 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=true		(1), (2), (3), (4)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	IC-342-FIELD-4-SW	RA: 03 46 32.4000 (56.6350000d) Dec: +68 03 10.10 (68.05281d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD				
	(5)	IC-342-FIELD-5-SE	RA: 03 47 4.6000 (56.7691667d) Dec: +68 03 10.10 (68.05281d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) IC-342-FIELD-4-SW	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 1-1 in Visit 02 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2		(4) IC-342-FIELD-4-SW	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 2-2 in Visit 02 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	3		(5) IC-342-FIELD-5-SE	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 3-3 in Visit 02 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[2]
	4		(5) IC-342-FIELD-5-SE	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 4-4 in Visit 02 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[2]





Proposal 16002 - Visit 03 - The Giant Hiding in Our Backyard: The Nearby Spiral Starburst Galaxy IC 342

Fri Sep 20 14:00:45 GMT 2019

Visit	Proposal 16002, Visit 03 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=true		(1), (2), (3), (4)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	IC-342-FIELD-6-E	RA: 03 47 20.7000 (56.8362500d) Dec: +68 05 46.00 (68.09611d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD				
	(7)	IC-342-FIELD-7-NE	RA: 03 47 4.6000 (56.7691667d) Dec: +68 08 21.90 (68.13942d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ACCRETION DISK, DISK, SPIRAL, STAR FORMING REGION]	Epoch of Position: 2015.5	V=10+/-0.5	Reference Frame: SIMBAD				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(6) IC-342-FIELD-6-E	(6) IC-342-FIELD-6-E	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 1-1 in Visit 03 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	(6) IC-342-FIELD-6-E	(6) IC-342-FIELD-6-E	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 2-2 in Visit 03 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	3	(7) IC-342-FIELD-7-NE	(7) IC-342-FIELD-7-NE	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 1, Exps 3-3 in Visit 03 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[2]
	4	(7) IC-342-FIELD-7-NE	(7) IC-342-FIELD-7-NE	ACS/WFC, ACCUM, WFCENTER	F435W			Pattern 1, Exps 4-4 in Visit 03 (1)	342 Secs (1026 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[2]

