13572 - IR persistence model tests

Cycle: 21, Proposal Category: CAL/WFC3

(Availability Mode: RESTRICTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(2) NGC-104 DARK	WFC3/IR	2	14-Oct-2013 21:24:56.0	yes
02	(2) NGC-104 DARK	WFC3/IR	2	14-Oct-2013 21:25:16.0	yes
03	(1) OMEGACEN-1 DARK	WFC3/IR	2	14-Oct-2013 21:25:33.0	yes
04	(1) OMEGACEN-1 DARK	WFC3/IR	2	14-Oct-2013 21:25:49.0	yes
05	(2) NGC-104 DARK	WFC3/IR	2	14-Oct-2013 21:26:05.0	yes
06	(1) OMEGACEN-1 DARK	WFC3/IR	2	14-Oct-2013 21:26:25.0	yes
07	(1) OMEGACEN-1 DARK	WFC3/IR	2	14-Oct-2013 21:26:41.0	yes
08	(1) OMEGACEN-1 DARK	WFC3/IR	2	14-Oct-2013 21:26:56.0	yes

16 Total Orbits Used

ABSTRACT

Persistence (afterglows) is seen in the IR channel of WFC3. The amount of persistence in a pixel depends on fluence (total number of electrons) after the time the pixel is held at this fluence level. These calibration observations are intended to improve our the model we have of persistence by determiing the amount of persistence from exposures of different durations.

OBSERVING DESCRIPTION

Each visit in this program consists of a single multi-accum exposure of a field in Omega Cen. The multi-accum exposure is followed by a series of darks to measure the persistence. The intial exposures range in time 50 to 1400. The darks extend for about 4000 seconds after the mulit-accum exposure

CALIBRATION JUSTIFICATION

For calibration proposals from earlier cycles, we now know that persistence is not simply a function of fluence but it is also a function of the time a pixel is held at a given fluence level. The current persistence model does not take this into account, in part because we do not have sufficient data to characterise the increase in persistence under normal observing conditions. In this proposal, we vary the exposure time and measure the persistence at a given fluence level. We should then be able to add exposure time as a parameter in the model of predicted persistence.

ADDITIONAL COMMENTS

These observations consitutue ``bad actors'' for persistence. Other IR observations should not be scheduled immediately after them. The 'bad actor' clock can start after the external exposures.

The various visits in the program should be separated by a minimum of 3 orbits. If necessary to improve the scheduling the requirement for non-interruptable exposures can be relaxed (a little), that is after the first few dark exposures, small gaps (several hundred seconds) can be allowed.

Visit

Proposal 13572, Visit 01 Tue Oct 15 01:27:06 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

This exposure is for 50 seconds

Fixed Targets

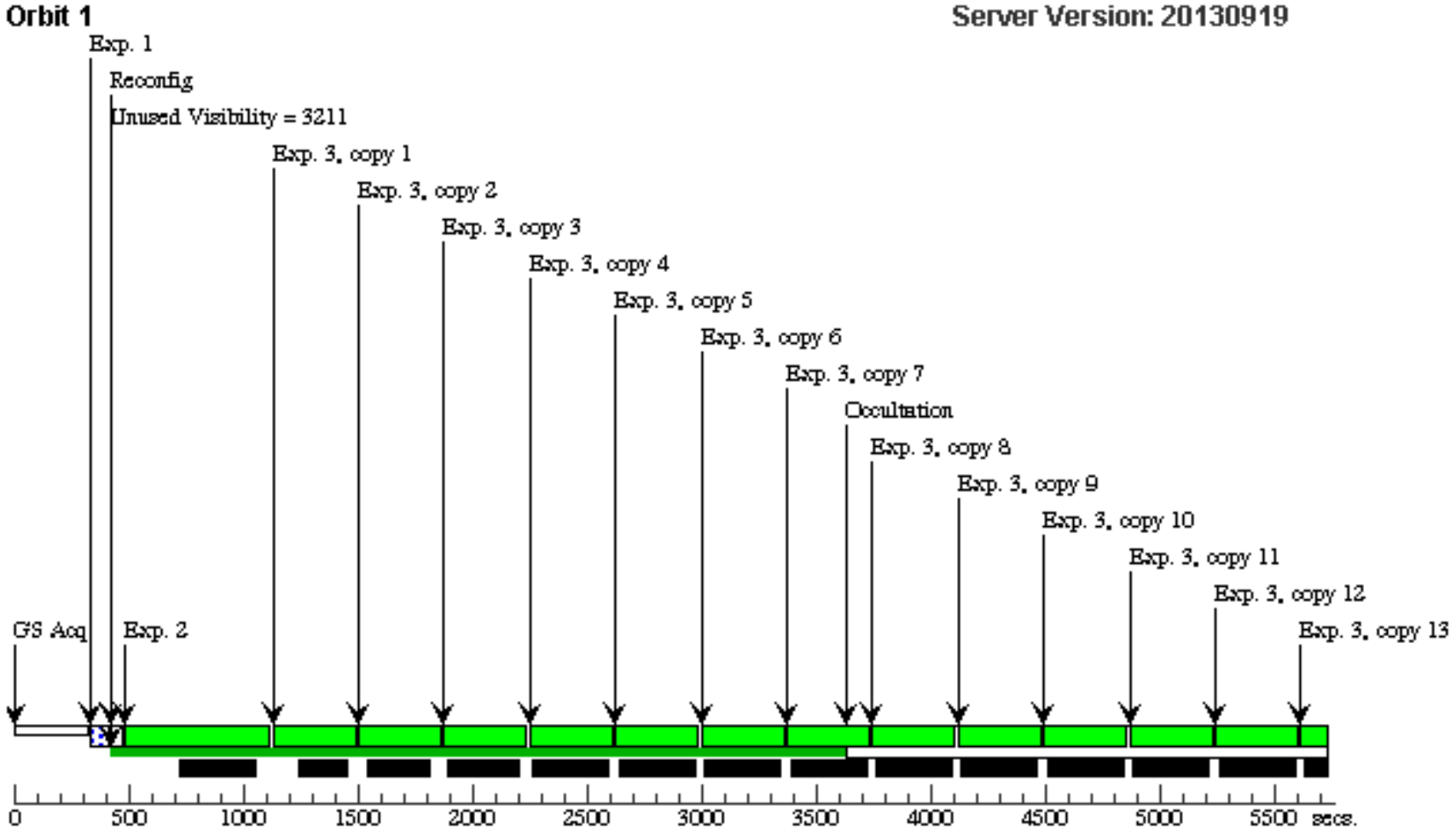
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC-104	RA: 00 24 5.3590 (6.0223292d) Dec: -72 04 53.20 (-72.08144d) Equinox: J2000		V=4.09	Reference Frame: SIMBAD

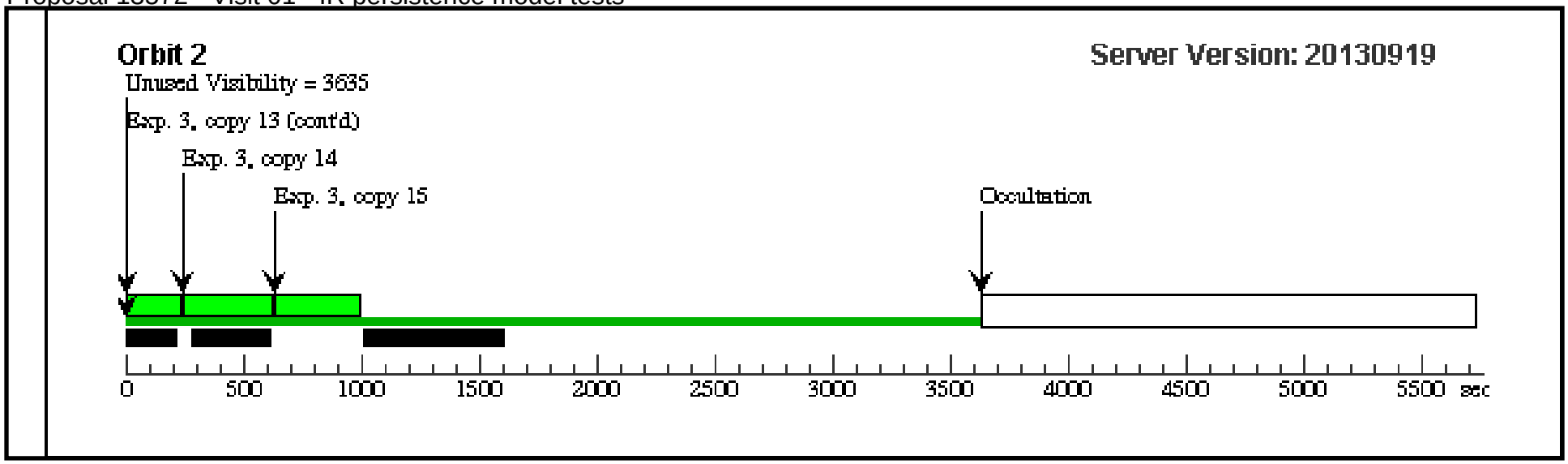
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) NGC-104	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=STEP25; NSAMP=6		Sequence 1-3 Non-Int in Visit 01	49.230226 Secs (49.23 Secs) *[==>]*	 ***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=12; SAMP-SEQ=STEP100		Sequence 1-3 Non-Int in Visit 01	599.232292 Secs (599.232 Secs) *[==>]*	 ***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 01	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	 ***[1]*** ***[2]***

Orbit Structure




Orbit 2
Server Version: 20130919
Unused Visibility = 3635
Exp. 3, copy 13 (cont'd)
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 02 Tue Oct 15 01:27:08 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed

This is exposure is for 150 seconds

Fixed Targets

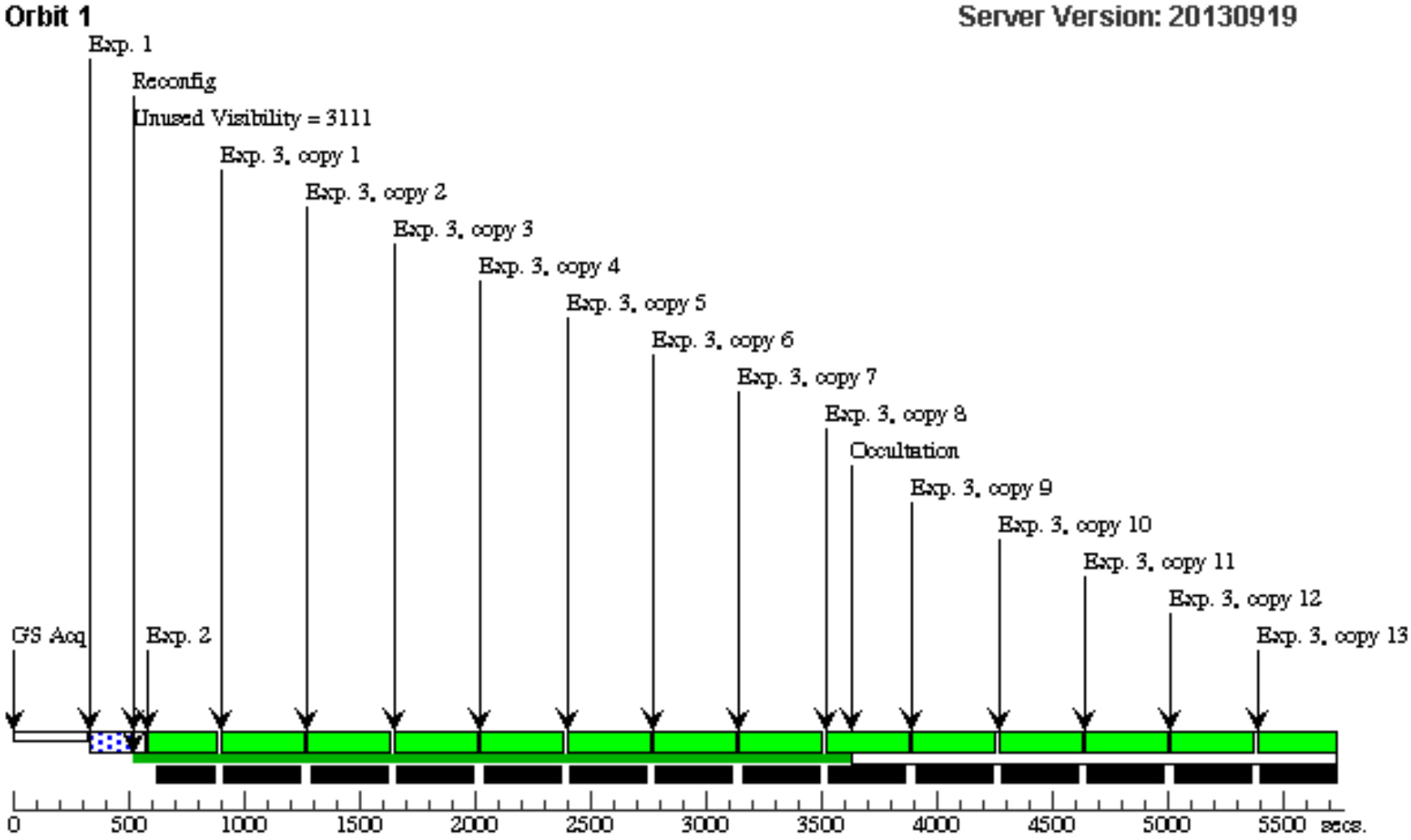
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC-104	RA: 00 24 5.3590 (6.0223292d) Dec: -72 04 53.20 (-72.08144d) Equinox: J2000		V=4.09	Reference Frame: SIMBAD

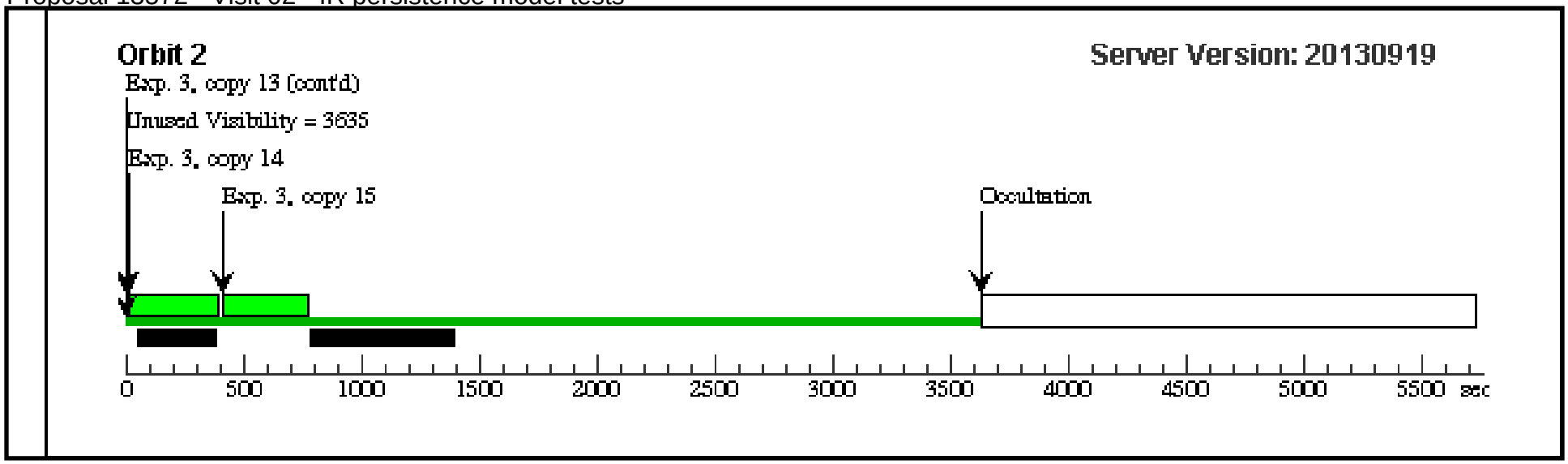
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) NGC-104	WFC3/IR, MULTIACCUM, IR-FIX	F125W	SAMP-SEQ=STEP25; NSAMP=10		Sequence 1-3 Non-Int in Visit 02	149.232286 Secs (149.232 Secs) *[==>]*	 ***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=15; SAMP-SEQ=STEP25		Sequence 1-3 Non-Int in Visit 02	274.234861 Secs (274.235 Secs) *[==>]*	 ***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 02	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	 ***[1]*** ***[2]***

Orbit Structure

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Exp. 3, copy 13 (cont'd)
Unused Visibility = 3635
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 03 Tue Oct 15 01:27:10 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

This exposure is for 500 s

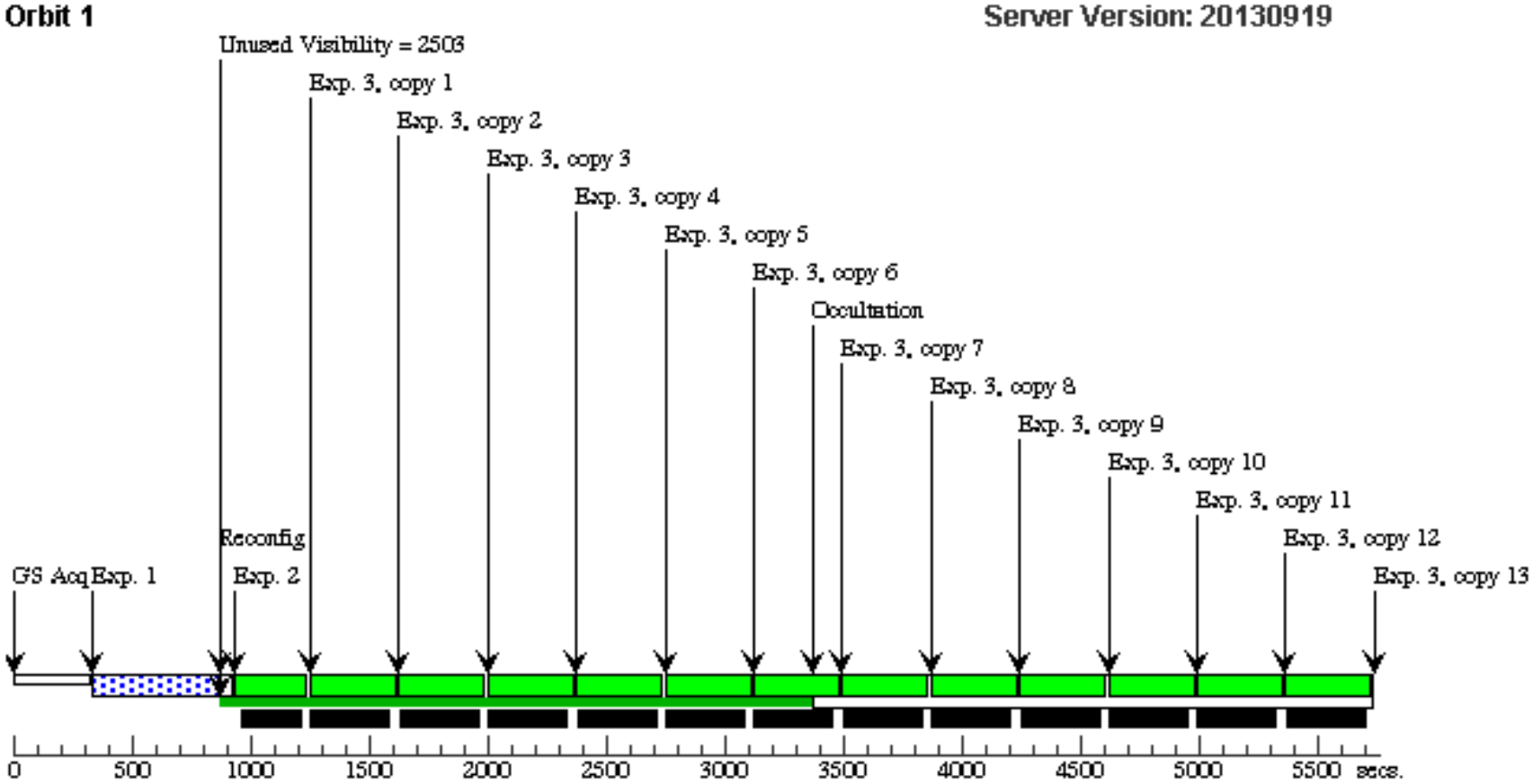
Fixed Targets

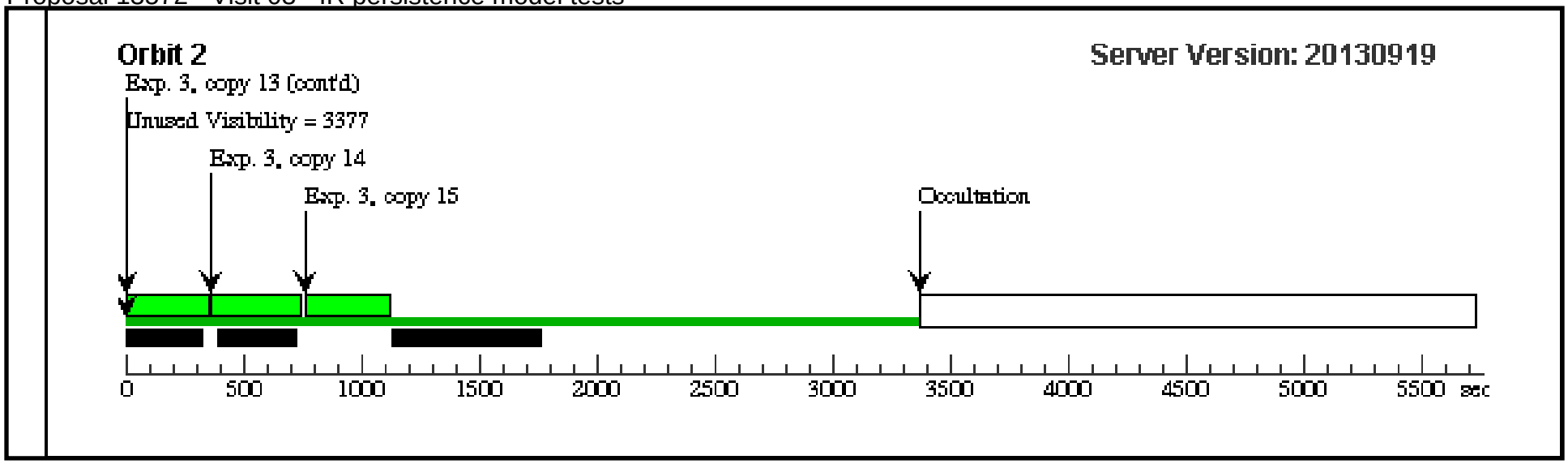
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OMEGACEN-1	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=18+/-0.01	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) OMEGACEN-1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=STEP100; NSAMP=11		Sequence 1-3 Non-Int in Visit 03	499.231969 Secs (499.232 Secs) *[==>]*	 ***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=15; SAMP-SEQ=STEP25		Sequence 1-3 Non-Int in Visit 03	274.234861 Secs (274.235 Secs) *[==>]*	 ***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 03	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	 ***[1]*** ***[2]***

Orbit Structure

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Unused Visibility = 3377
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 04 Tue Oct 15 01:27:11 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

The exposure is for 1100 s

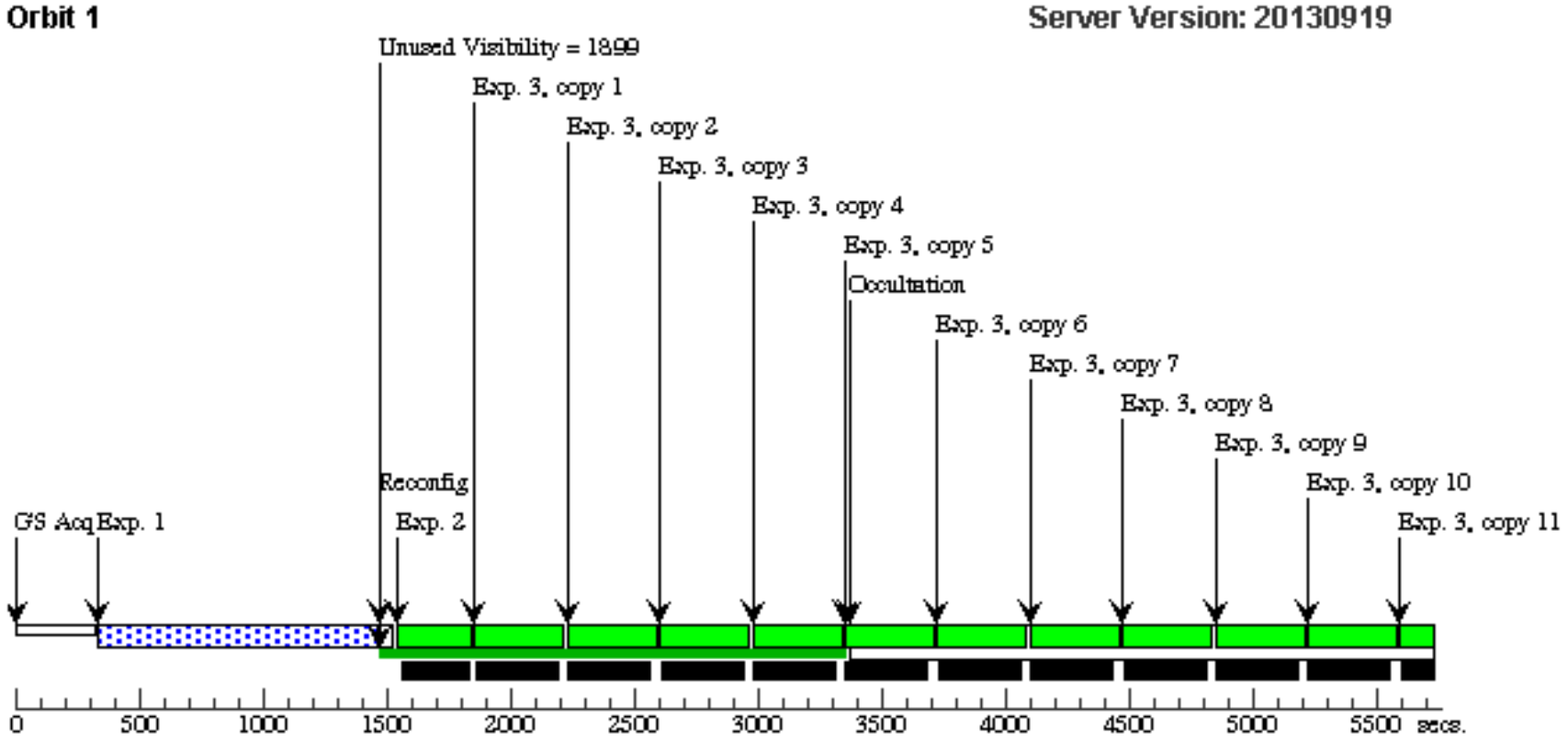
Fixed Targets

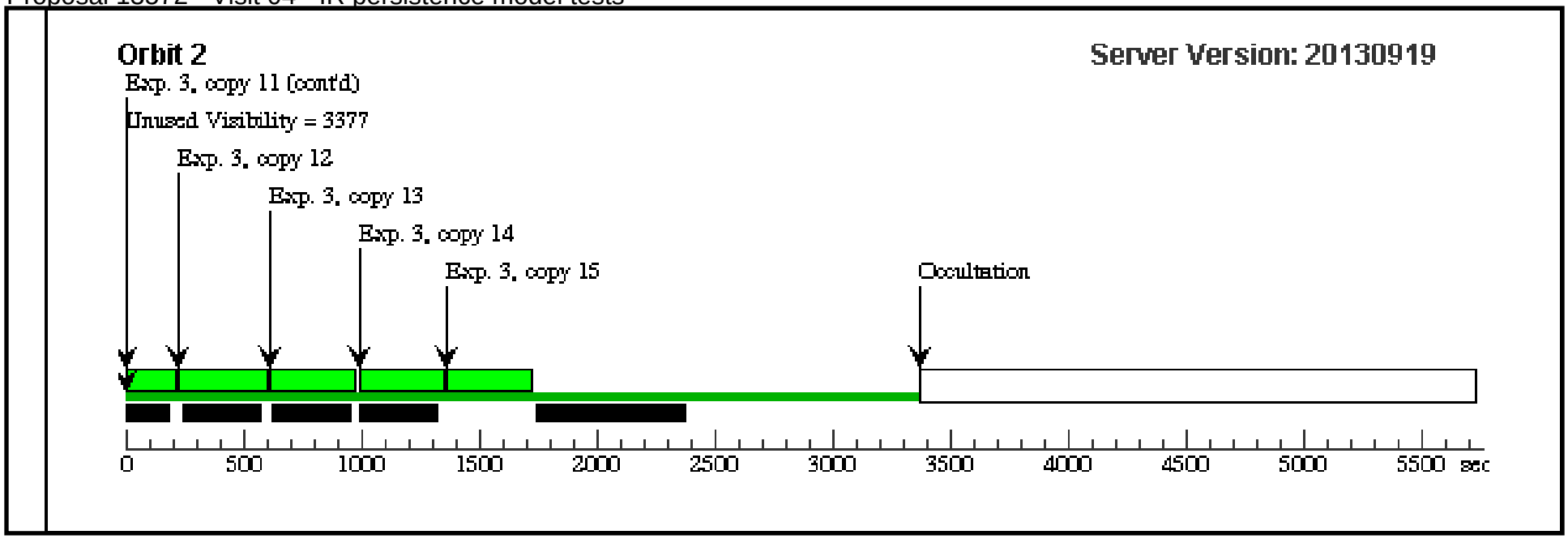
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OMEGACEN-1	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=18+/-0.01	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) OMEGACEN-1	WFC3/IR, MULTIACCUM, IR-FIX	F127M	SAMP-SEQ=SPARS100; NSAMP=12		Sequence 1-3 Non-Int in Visit 04	1102.935844 Secs (1102.936 Secs) *[==>]*	 ***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=15; SAMP-SEQ=STEP25		Sequence 1-3 Non-Int in Visit 04	274.234861 Secs (274.235 Secs) *[==>]*	 ***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 04	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	 ***[1]*** ***[2]***

Orbit Structure

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Unused Visibility = 3377
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Exp. 3, copy 13
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 05 Tue Oct 15 01:27:13 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

This exposure is for 100 s

Fixed Targets

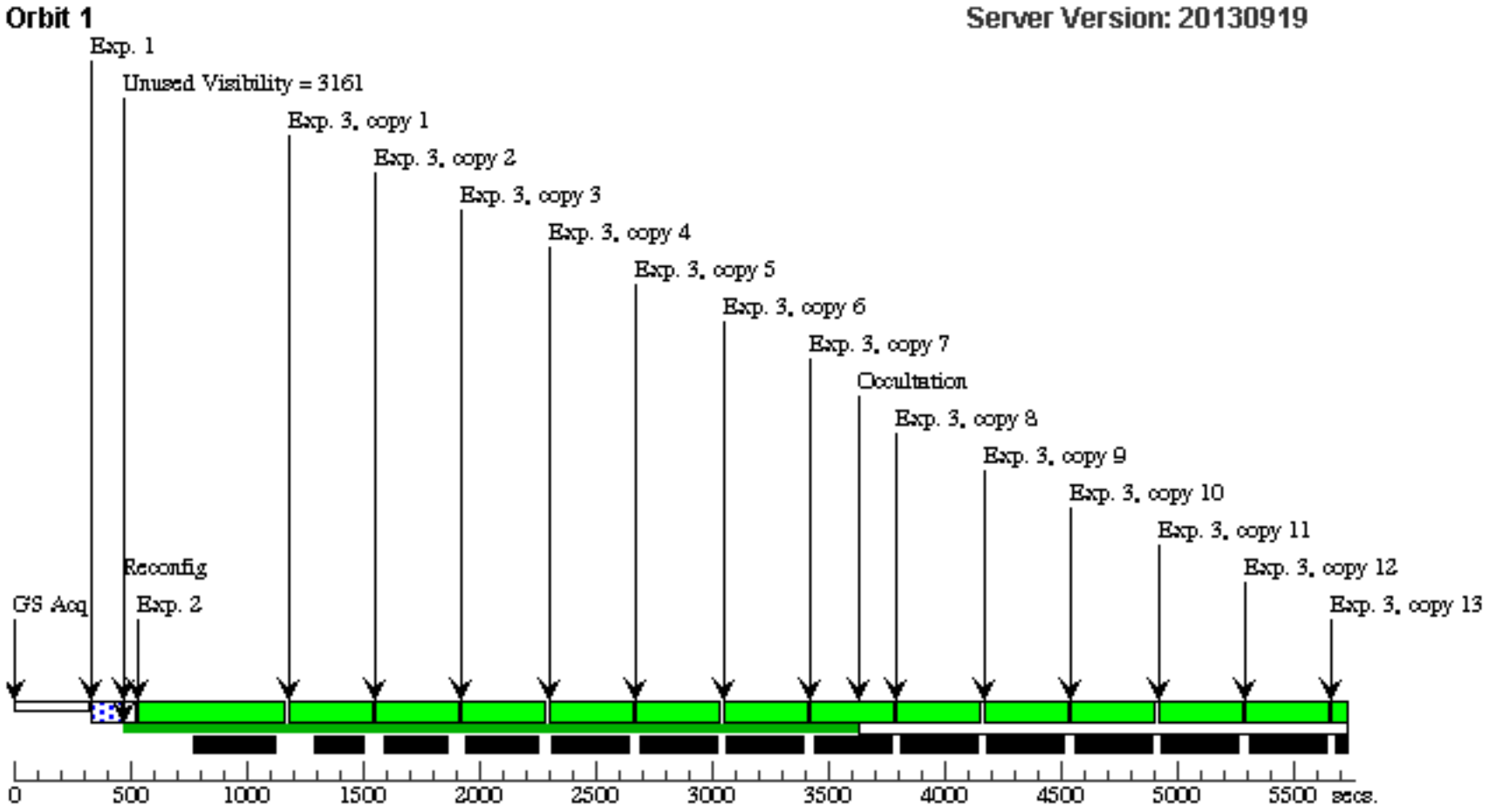
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC-104	RA: 00 24 5.3590 (6.0223292d) Dec: -72 04 53.20 (-72.08144d) Equinox: J2000		V=4.09	Reference Frame: SIMBAD

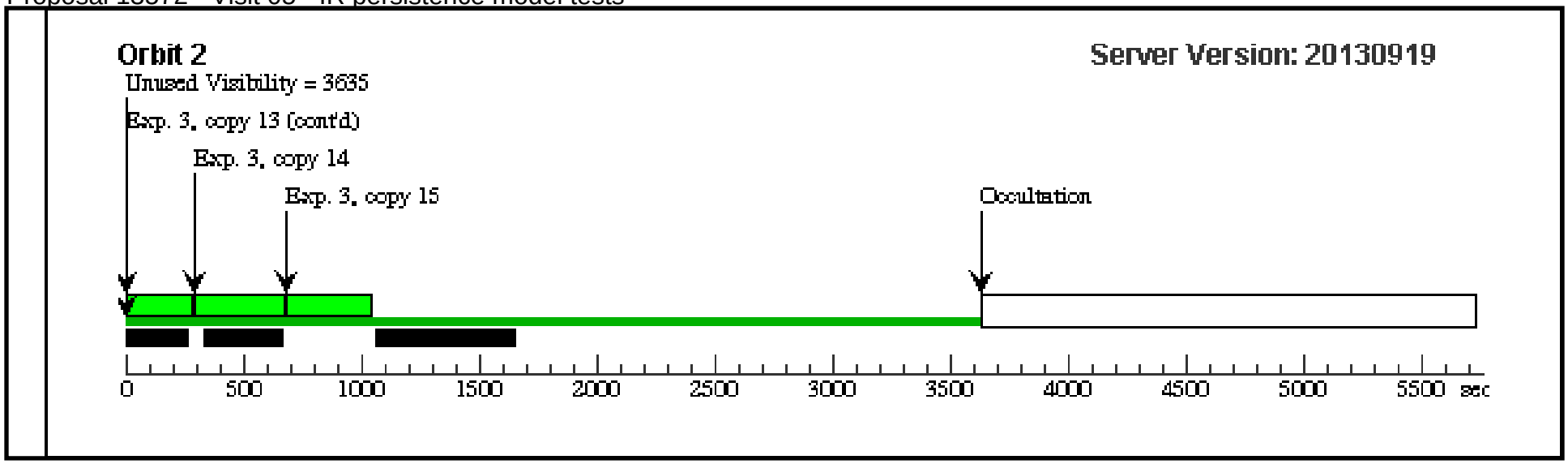
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) NGC-104	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=STEP50; NSAMP=7		Sequence 1-3 Non-Int in Visit 05	99.230677 Secs (99.231 Secs) *[==>]*	***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=12; SAMP-SEQ=STEP100		Sequence 1-3 Non-Int in Visit 05	599.232292 Secs (599.232 Secs) *[==>]*	***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 05	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]*	***[1]***
								[==>(Copy 14)] *[==>(Copy 15)]*	***[2]***

Orbit Structure

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Server Version: 20130919
Unused Visibility = 3635
Exp. 3, copy 13 (cont'd)
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 06 Tue Oct 15 01:27:14 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

This exposure is for 200 s

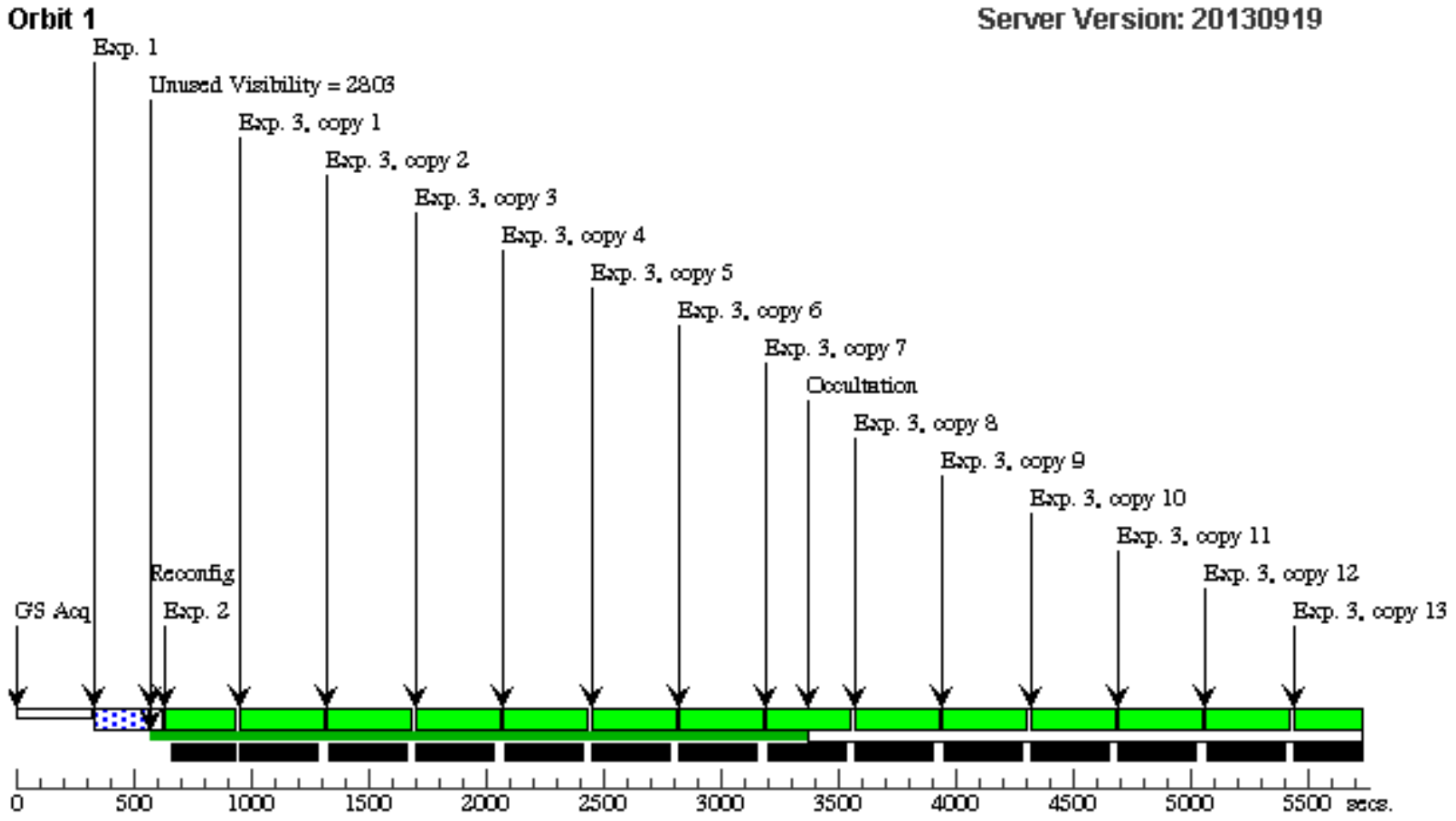
Fixed Targets

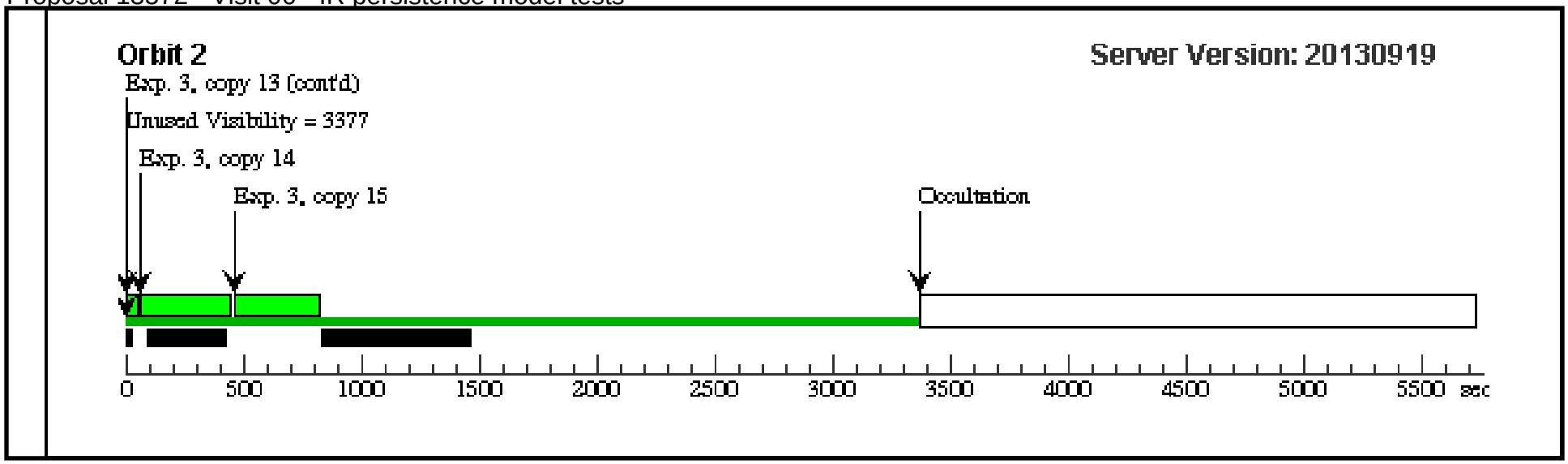
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OMEGACEN-1	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=18+/-0.01	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) OMEGACEN-1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=STEP25; NSAMP=12		Sequence 1-3 Non-Int in Visit 06	199.233316 Secs (199.233 Secs) *[==>]*	 ***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=15; SAMP-SEQ=STEP25		Sequence 1-3 Non-Int in Visit 06	274.234861 Secs (274.235 Secs) *[==>]*	 ***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 06	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	 ***[1]*** ***[2]***

Orbit Structure




Orbit 2
Server Version: 20130919
Exp. 3, copy 13 (cont'd)
Unused Visibility = 3377
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 07 Tue Oct 15 01:27:15 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

This exposure is for 800 seconds

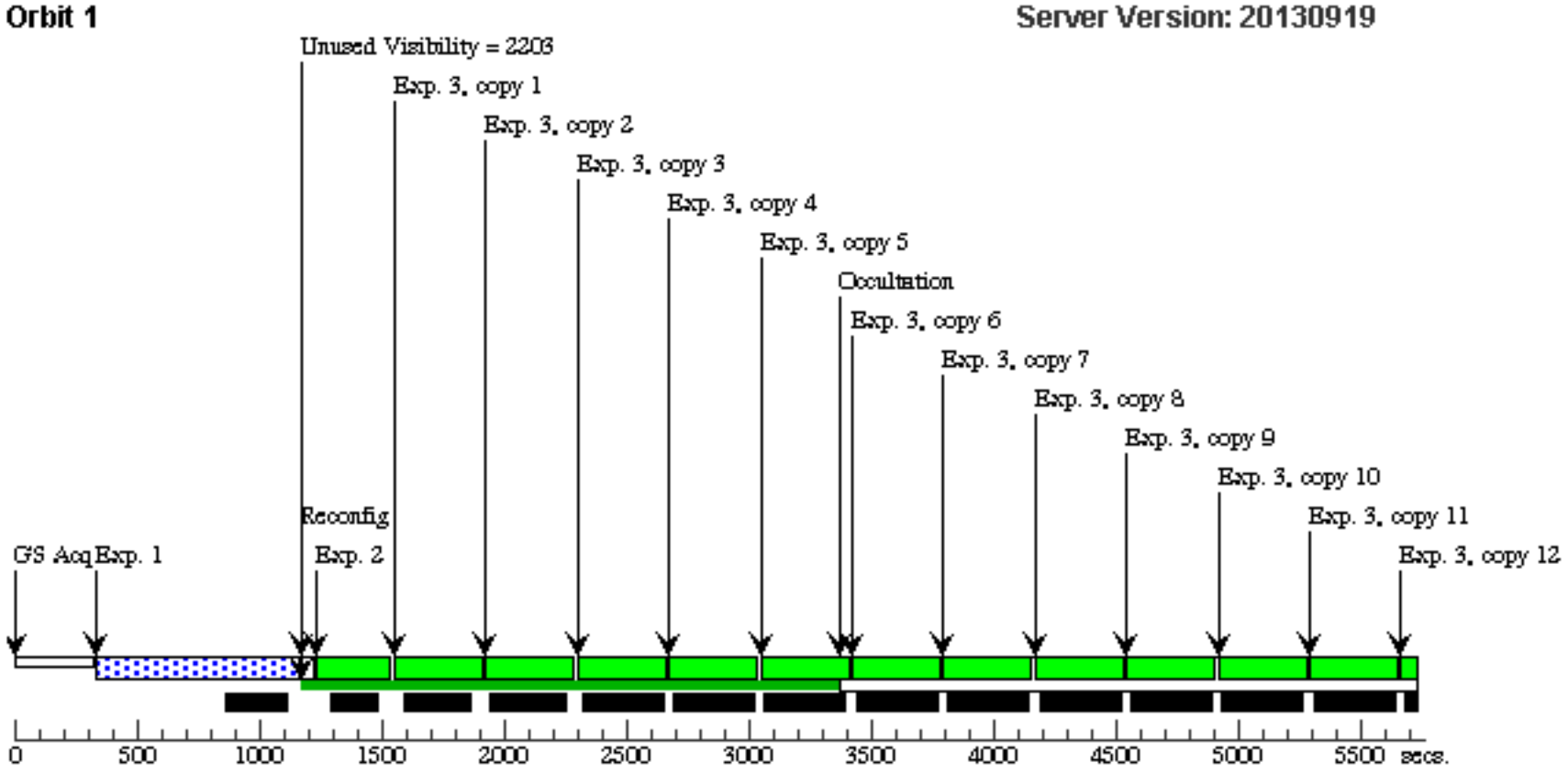
Fixed Targets

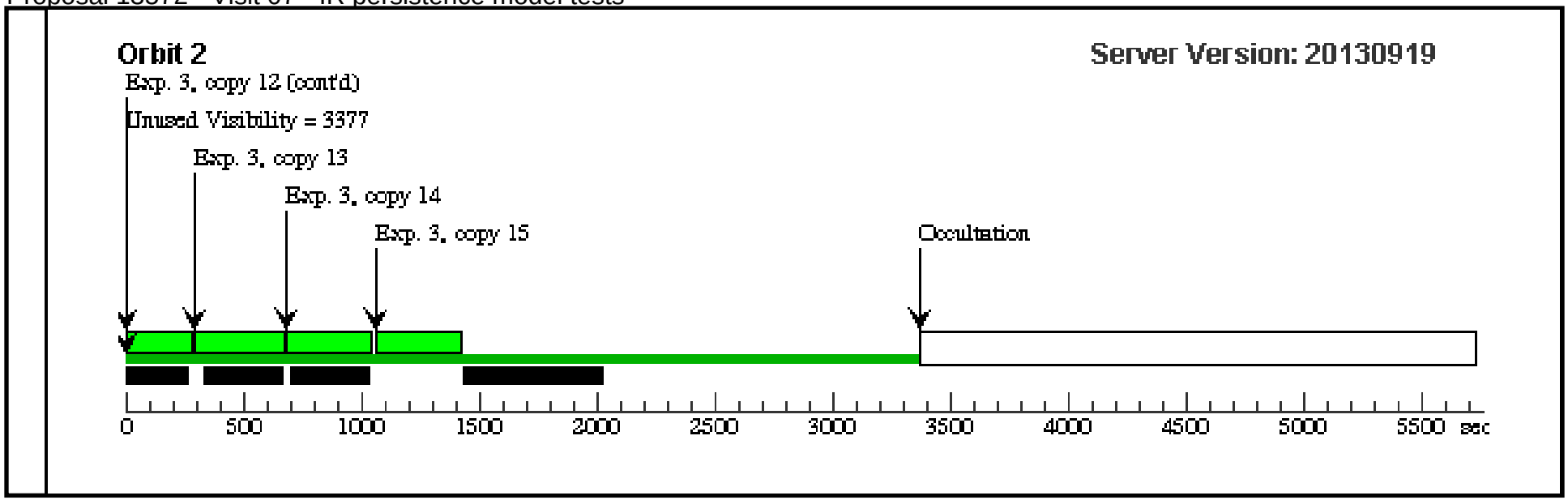
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OMEGACEN-1	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=18+/-0.01	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) OMEGACEN-1	WFC3/IR, MULTIACCUM, IR-FIX	F125W	SAMP-SEQ=STEP100; NSAMP=14		Sequence 1-3 Non-Int in Visit 07	799.232938 Secs (799.233 Secs) *[==>]*	 ***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=15; SAMP-SEQ=STEP25		Sequence 1-3 Non-Int in Visit 07	274.234861 Secs (274.235 Secs) *[==>]*	 ***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 07	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	 ***[1]*** ***[2]***

Orbit Structure




Orbit 2
Server Version: 20130919
Exp. 3, copy 12 (cont'd)
Unused Visibility = 3377
Exp. 3, copy 13
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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Visit

Proposal 13572, Visit 08 Tue Oct 15 01:27:16 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This is a test of persistence using Omega Cen as the source. A considerable portion of the image will be overexposed.

This expososure is for 1400 seconds

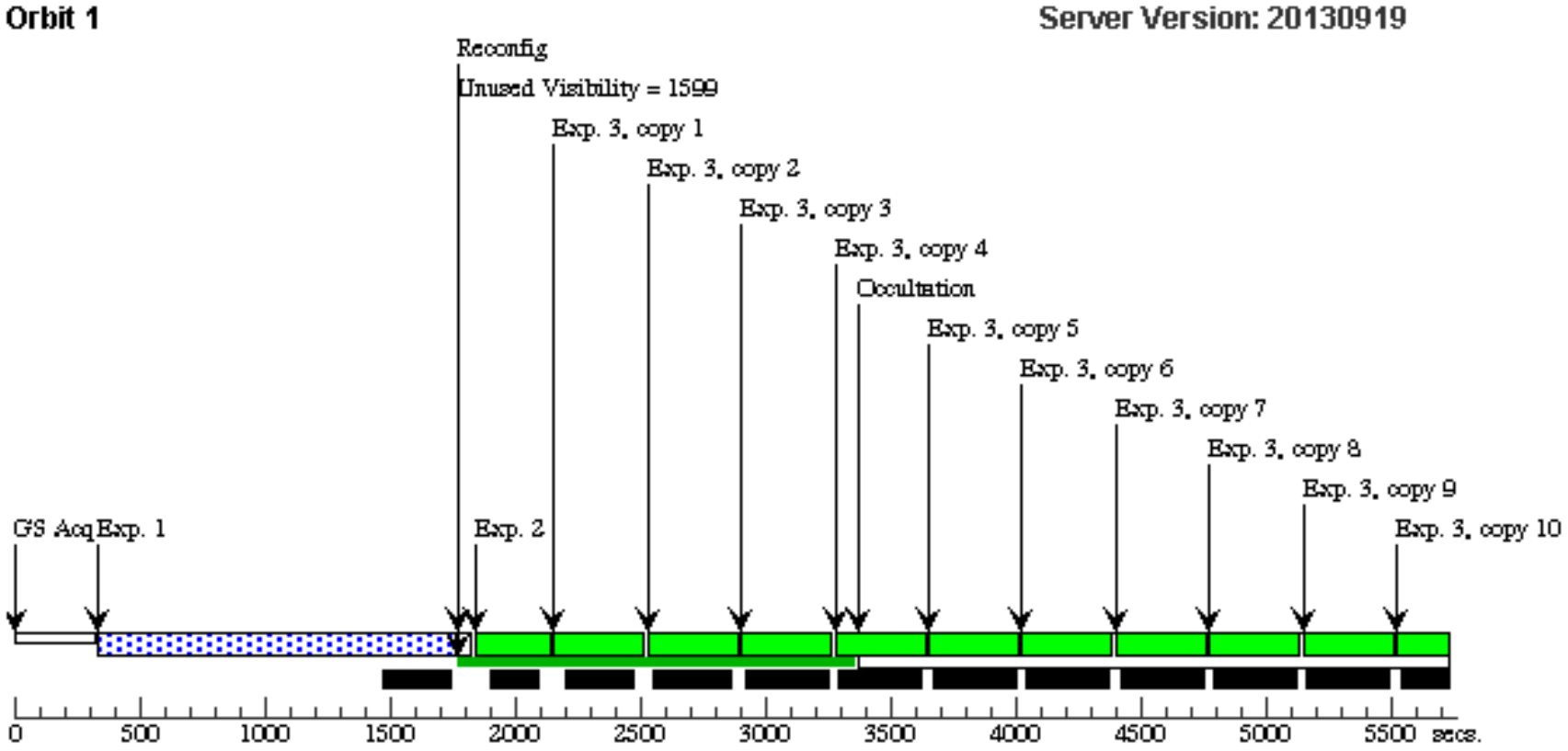
Fixed Targets

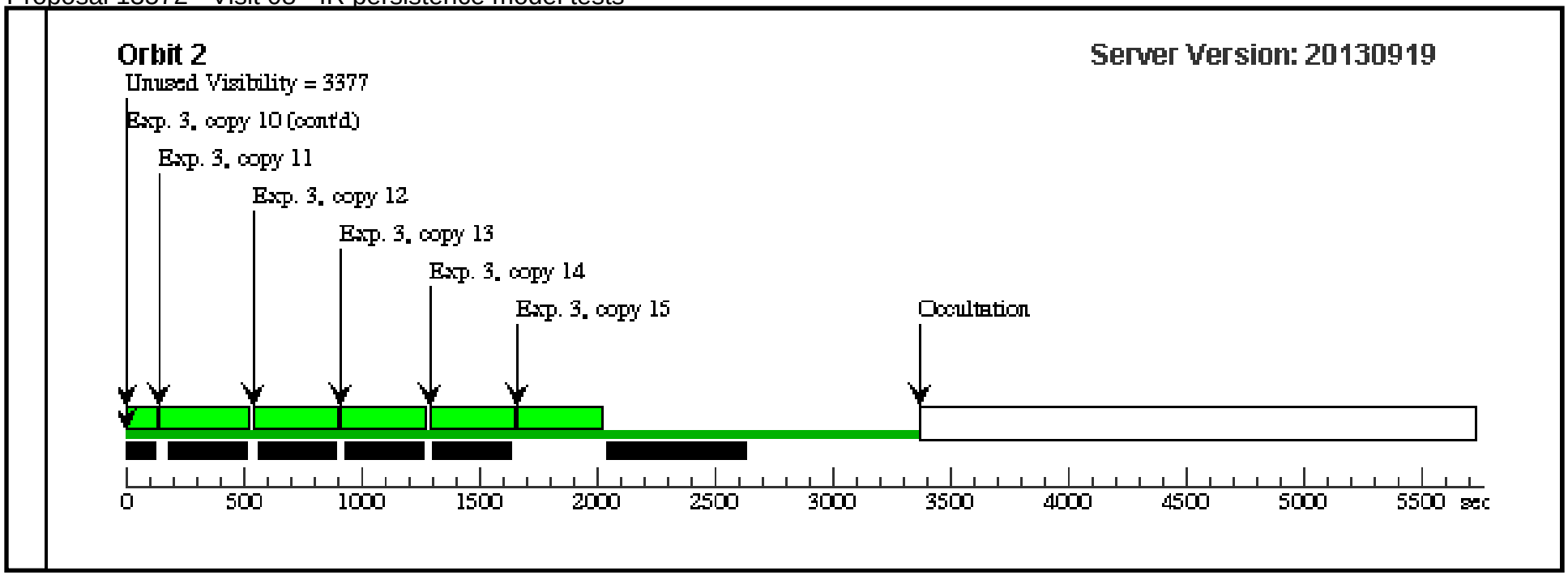
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OMEGACEN-1	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=18+/-0.01	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) OMEGACEN-1	WFC3/IR, MULTIACCUM, IR-FIX	F127M	SAMP-SEQ=SPARS100; NSAMP=15		Sequence 1-3 Non-Int in Visit 08	1402.936813 Secs (1402.937 Secs) *[==>]*	***[1]***
2		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	NSAMP=15; SAMP-SEQ=STEP25		Sequence 1-3 Non-Int in Visit 08	274.234861 Secs (274.235 Secs) *[==>]*	***[1]***
3		DARK	WFC3/IR, MULTIACCUM, IR-FIX	BLANK	SAMP-SEQ=SPARS25; NSAMP=15		Sequence 1-3 Non-Int in Visit 08	352.939501 Secs X 15 (5294.093 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]*	***[1]*** ***[2]***

Orbit Structure




Orbit 2
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Unused Visibility = 3377
Exp. 3, copy 10 (cont'd)
Exp. 3, copy 11
Exp. 3, copy 12
Exp. 3, copy 13
Exp. 3, copy 14
Exp. 3, copy 15
Occultation
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1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec