16228 - A Multi-Cycle Monitoring Program of the Hydra's Shadow

Cycle: 28, 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?*
01	(1) V-TW-HYA	STIS/CCD	1	17-Feb-2022 15:00:33.0	yes
02	(1) V-TW-HYA	STIS/CCD	1	17-Feb-2022 15:00:33.0	yes
03	(2) PSF-REF-HD85512	STIS/CCD	1	17-Feb-2022 15:00:35.0	yes
53	(2) PSF-REF-HD85512	STIS/CCD	1	17-Feb-2022 15:00:38.0	yes
04	(1) V-TW-HYA	STIS/CCD	1	17-Feb-2022 15:00:39.0	yes
54	(1) V-TW-HYA	STIS/CCD	1	17-Feb-2022 15:00:40.0	yes

6 Total Orbits Used

ABSTRACT

In the era of HST, JWST, and ALMA, the initial conditions of planet formation will be laid bare through the direct imaging of planet forming regions around nearby young stars. As more and more disks are observed over multiple epochs, their dynamic and variable natures are revealed, opening new avenues of study. Archival HST images of TW Hya's outer disk show that it has a shadow that orbits with a period of ~16 yr, but the full orbit of the shadow has not been observed, leaving ambiguity about its origin. We propose to observe TW Hya over the next three Cycles with HST/STIS coronagraphy to fill in badly needed orbital phase coverage of the shadow's motion and create a homogenous, high quality dataset with archival STIS observations. Our program will elucidate the physical origin of the shadow and constrain the structure of TW Hya's inner cavity independently from sub-mm imaging. Disk shadow imaging is a new tool for understanding the initial conditions of planet formation at radii inaccessible by other observations.

OBSERVING DESCRIPTION

This proposal is replicated from 13753, which observed TW Hya in 2015/2016 with a combination of BAR5 and WEDGEA1.0 50CORON aperture positions. In this program we observe TW HYA in 3 visits interleaved with one visit of the PSF star. The first and last visit of TW Hya is oriented off nominal of between +/-15 to +/-30 degrees to enhance angular coverage of the protoplanetary disk. We seek to have this visit scheduled before August 1, 2021 so as to have phase overlap with a low SNR observation of TW Hya with NICMOS and to fully test the variability of the shadow's amplitude with time.

Visit

Proposal 16228, V1-TWHYA (01), completed Thu Feb 17 20:00:41 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: PCS MODE FINE; GUID TOL 0.005"; GYRO MODE 3GOBAD; SCHED 100%; ORIENT -30D TO -15D FROM 02

Comments: TW Hya
First of two sets of visits, each containing three visits of TW Hya at different relative orientations with one PSF calibration observation interleaved.
This is the first TW Hya visit in the first set.
The four visits within each set must be executed sequentially in contiguous orbits interrupted only for Earth occultation.

Orientation: We wish to schedule this visit (1) at -30 deg from Visit 2, with the absolute orientation of Visit 2 unconstrained.
We allow a relative orientation tolerence from -15 deg to -30 deg to assist in guide star selection and scheduling.
NOTE to PC: Schedule as close to -30 deg from Visit 2 as possible.

Relative Timing: This visit (1) should immediately preceed visit (2). I.e., They should be executed sequentially in "back-to-back" orbits.

BAR5 exposure times are selected to maximize SNR close to the star (~10-15/pixel up to inner working angle) and WEDGEA1.0 are selected to be as long as possible to ensure depth exterior to 1".

Fixed Targets

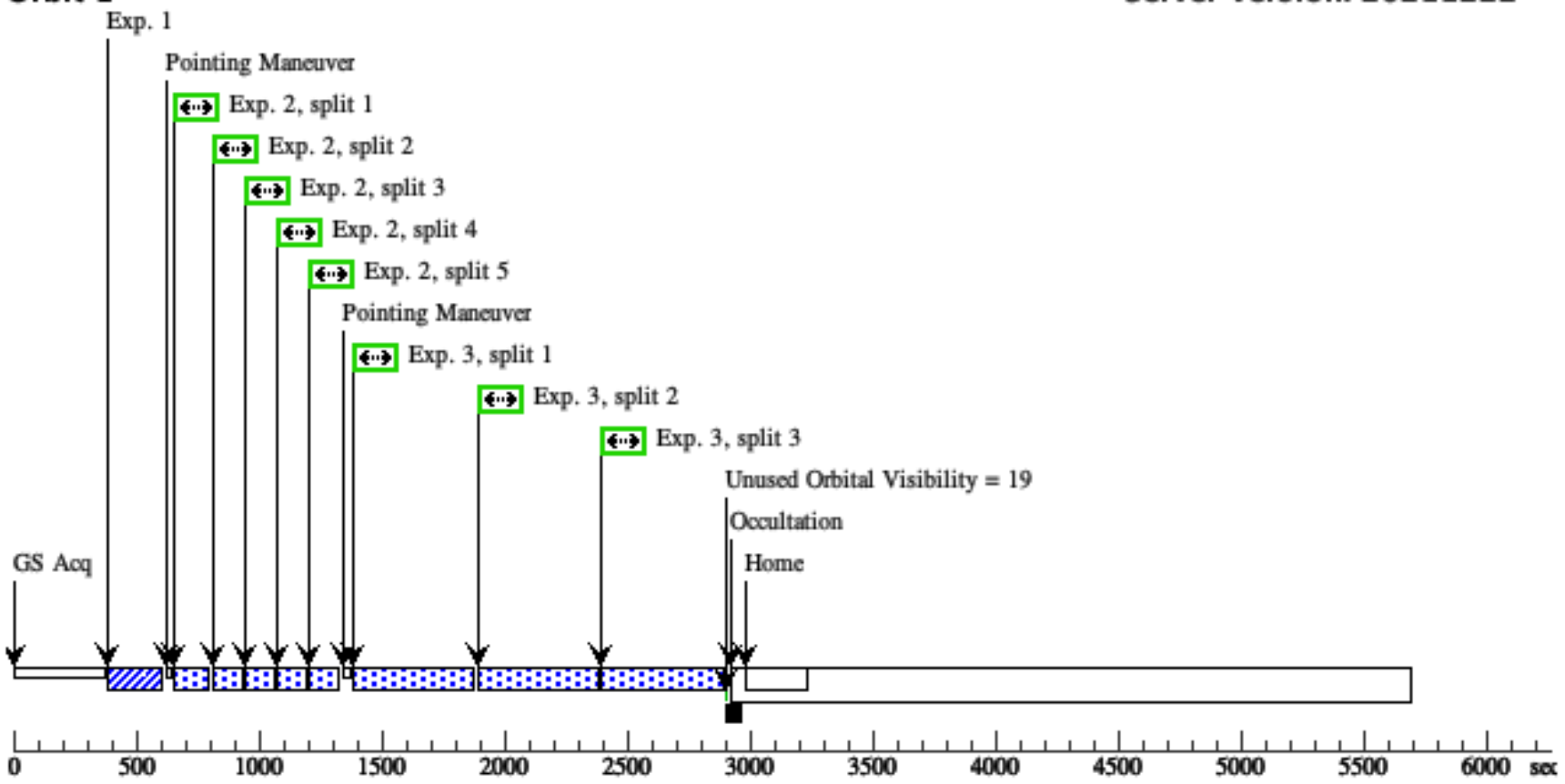
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-TW-HYA	RA: 11 01 51.9129 (165.4663038d) Dec: -34 42 17.00 (-34.70472d) Equinox: J2000	Proper Motion RA: -68.4 mas/yr Proper Motion Dec: -14.02 mas/yr Epoch of Position: 1999.32	V=10.5	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	TWHYA_ACQ (STIS.ta.1447817)	(1) V-TW-HYA	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3	Sequence 1-3 Non-Int in V1-TWHYA (01)	0.2 Secs (0.2 Secs) *[==>]*	***[1]***
2	TWHYA_BAR5_CENTER	(1) V-TW-HYA	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4		Sequence 1-3 Non-Int in V1-TWHYA (01)	550 Secs (550 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
3	TWHYA_LONG_1	(1) V-TW-HYA	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; CR-SPLIT=3; GAIN=4		Sequence 1-3 Non-Int in V1-TWHYA (01)	1425 Secs (1425 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16228, V2-TWHYA (02), completed Thu Feb 17 20:00:41 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: PCS MODE FINE; GUID TOL 0.005"; GYRO MODE 3GOBAD; SCHED 100%; AFTER 01 BY .5 Orbits TO 1.5 Orbits

Comments: TW Hya
three visits of TW HYA at different relative orientations with one PSF calibration observation interleaved.
This is the second TW Hya visit in the first set.
The four visits within the set must be executed sequentially in contiguous orbits interrupted only for Earth occultation.

Orientation: There are no orientation constraints on this visit (2).
This visit at nominal roll as scheduled by STScI.
Visits 1, 3, 4 carry relative orientation constraints w.r.t. this visit.

Relative Timing: This visit (2) should immediately follow Visit 1 and immediately preceed Visit 3 in back-to-back orbits.

Fixed Targets

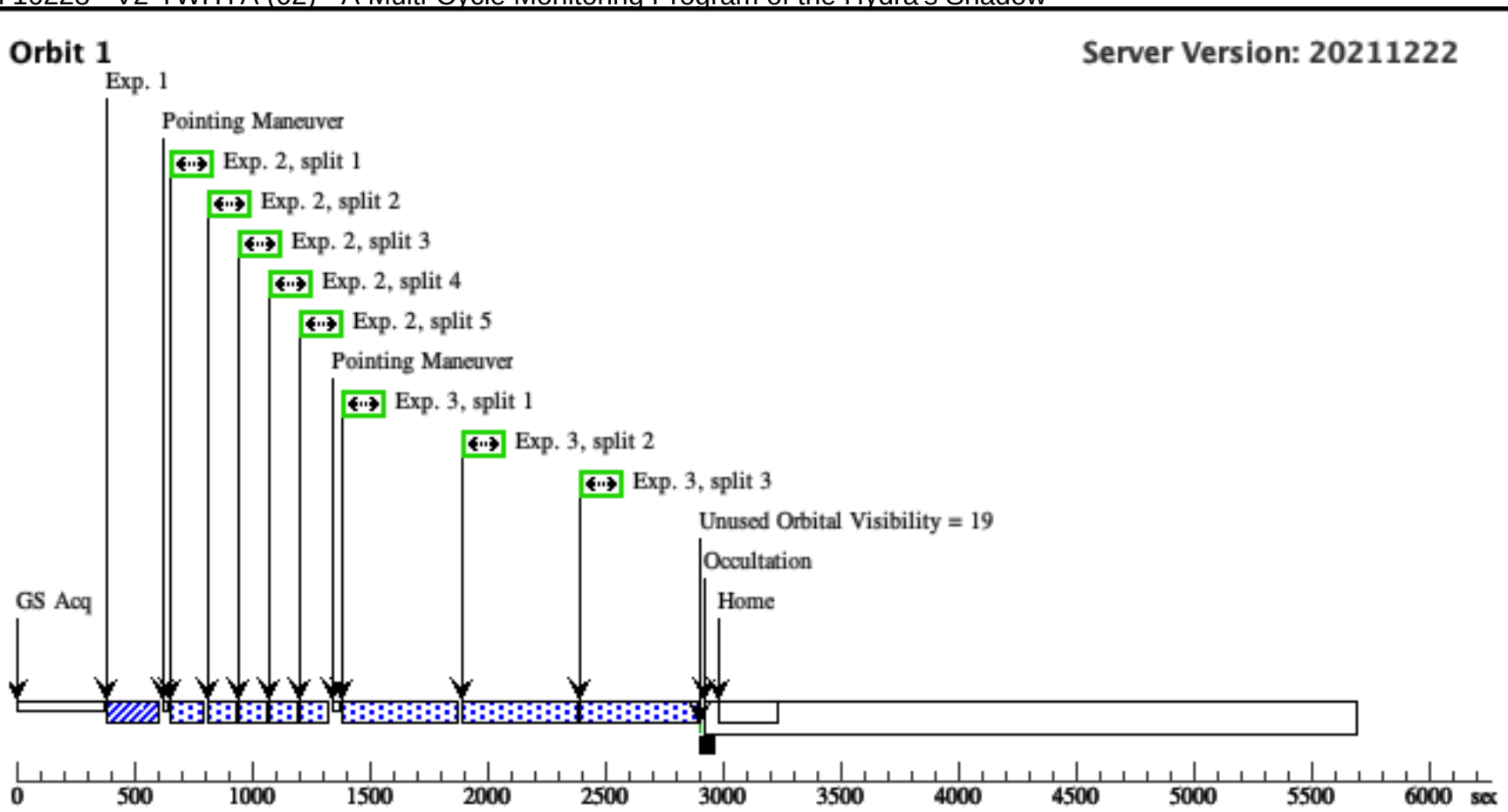
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-TW-HYA	RA: 11 01 51.9129 (165.4663038d) Dec: -34 42 17.00 (-34.70472d) Equinox: J2000	Proper Motion RA: -68.4 mas/yr Proper Motion Dec: -14.02 mas/yr Epoch of Position: 1999.32	V=10.5	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	TWHYA_ACQ (STIS.ta.1447817)	(1) V-TW-HYA	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3	Sequence 1-3 Non-Int in V2-TWHYA (02)	.2 Secs (0.2 Secs) *[==>]*	***[1]***
2	TWHYA_BAR5_CENTER	(1) V-TW-HYA	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4		Sequence 1-3 Non-Int in V2-TWHYA (02)	550 Secs (550 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
3	TWHYA_LONG_1	(1) V-TW-HYA	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; CR-SPLIT=3; GAIN=4		Sequence 1-3 Non-Int in V2-TWHYA (02)	1425 Secs (1425 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16228, V3-PSF-TWHYA (03), failed Thu Feb 17 20:00:41 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: PCS MODE FINE; GUID TOL 0.005"; GYRO MODE 3GOBAD; SCHED 100%; AFTER 02 BY .5 Orbits TO 1.5 Orbits

Comments: PSF (HD 85512). PSF calibration target for TW Hya. V = 7.636. B - V = +1.15. Spex. K6Vk

This is the PSF star calibrator for the flanking visits (1-4). We levy no orientation constraints on this visit (3). However, we choose this target since it has been used in the past for TW Hya. So as Visits 2 and 3 must be scheduled in sequential contiguous orbits, if scheduled at nominal roll (as we expect also Visit 2 will be) then we expect absolute orientations of Visits 2 and 3 to be very similar (within a few degrees). This is important so we maintain similar Sun and Beta angles for the science target and its PSF calibrator,

Relative Timing: This visit (3) should immediately follow visit 2 and immediately precede visit 4. I.e., they should be executed sequentially in "back-to-back" orbits.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	PSF-REF-HD85512	RA: 09 51 7.7094 (147.7821225d)	Proper Motion RA: 461 mas/yr	V=7.651	Reference Frame: ICRS
		Dec: -43 30 17.34 (-43.50482d)	Proper Motion Dec: -472.0 mas/yr		
		Equinox: J2000	Epoch of Position: 2015.5		

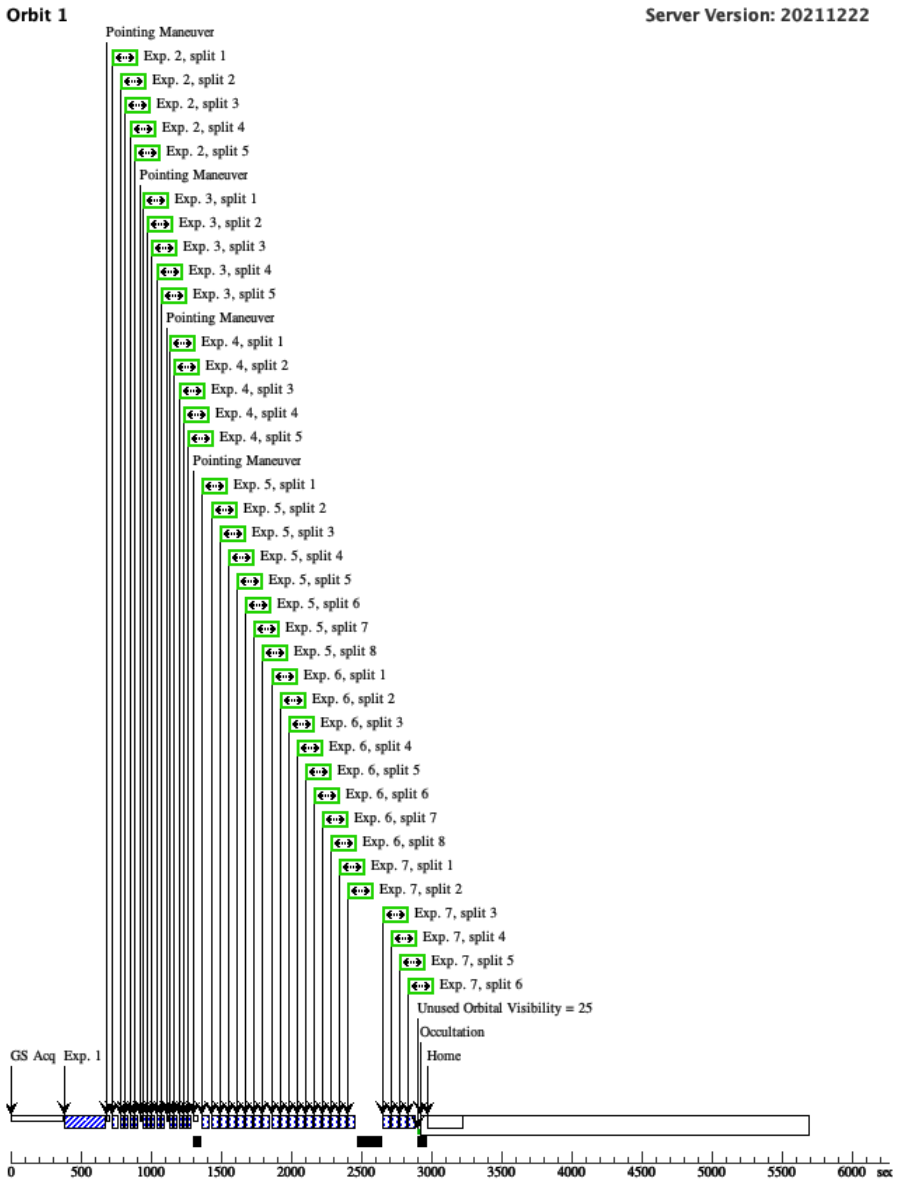
Comments: possible spoiler star from original 2000 program is now at ~5.73" in 2021.
Category=STAR
Description=[M V-IV]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSF-TWHYA_ACQ (STIS.ta.1447816)	(2) PSF-REF-HD85512	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1B3	Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	.7 Secs (0.7 Secs) *[==>]*	***[1]***
	Comments: K6V nearby star V=7.65 *Exptime rounded to nearest 0.1 second, assumed to get SNR=100.*								
2	PSF-TWHYA_BAR5_CENTER	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4		Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	56 Secs (56 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
3	PSF-TWHYA_BAR5_PLUSDITHER	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4	POS TARG 0.0024795,0.0124497	Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	56 Secs (56 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
4	PSF-TWHYA_BAR5_MINUSDITHER	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4	POS TARG -0.0024795,0.0124497	Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	56 Secs (56 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
5	PSF_TWHYA_LONG_1	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; CR-SPLIT=8; GAIN=4		Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	256 Secs (256 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]* *[==>(Split 6)]* *[==>(Split 7)]* *[==>(Split 8)]*	***[1]***
6	PSF_TWHYA_LONG_2	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; GAIN=4; CR-SPLIT=8		Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	256 Secs (256 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]* *[==>(Split 6)]* *[==>(Split 7)]* *[==>(Split 8)]*	***[1]***

	7	PSF_TWHYA_LONG_3	(2) PSF-REF-HD855 12	STIS/CCD, ACCUM, WEDGEA1.0 MIRROR	SIZEAXIS2=427; GAIN=4; CR-SPLIT=6	Sequence 1-7 Non-Int in V3-PSF-TWHYA (03)	192 Secs (192 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]* *[==>(Split 6)]*	***[1]***

Orbit Structure



Visit

Proposal 16228, V3-PSF-TWHYA (53), completed Thu Feb 17 20:00:41 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: PCS MODE FINE; GUID TOL 0.005"; GYRO MODE 3GOBAD; SCHED 100%

Comments: PSF (HD 85512). PSF calibration target for TW Hya. V = 7.636. B - V = +1.15. Spex. K6Vk

This is the PSF star calibrator for the flanking visits (1-4). We levy no orientation constraints on this visit (3). However, we choose this target since it has been used in the past for TW Hya. So as Visits 2 and 3 must be scheduled in sequential contiguous orbits, if scheduled at nominal roll (as we expect also Visit 2 will be) then we expect absolute orientations of Visits 2 and 3 to be very similar (within a few degrees). This is important so we maintain similar Sun and Beta angles for the science target and its PSF calibrator,

Relative Timing: This visit (3) should immediately follow visit 2 and immediately precede visit 4. I.e., they should be executed sequentially in "back-to-back" orbits.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	PSF-REF-HD85512	RA: 09 51 7.7094 (147.7821225d)	Proper Motion RA: 461 mas/yr	V=7.651	Reference Frame: ICRS
		Dec: -43 30 17.34 (-43.50482d)	Proper Motion Dec: -472.0 mas/yr		
		Equinox: J2000	Epoch of Position: 2015.5		

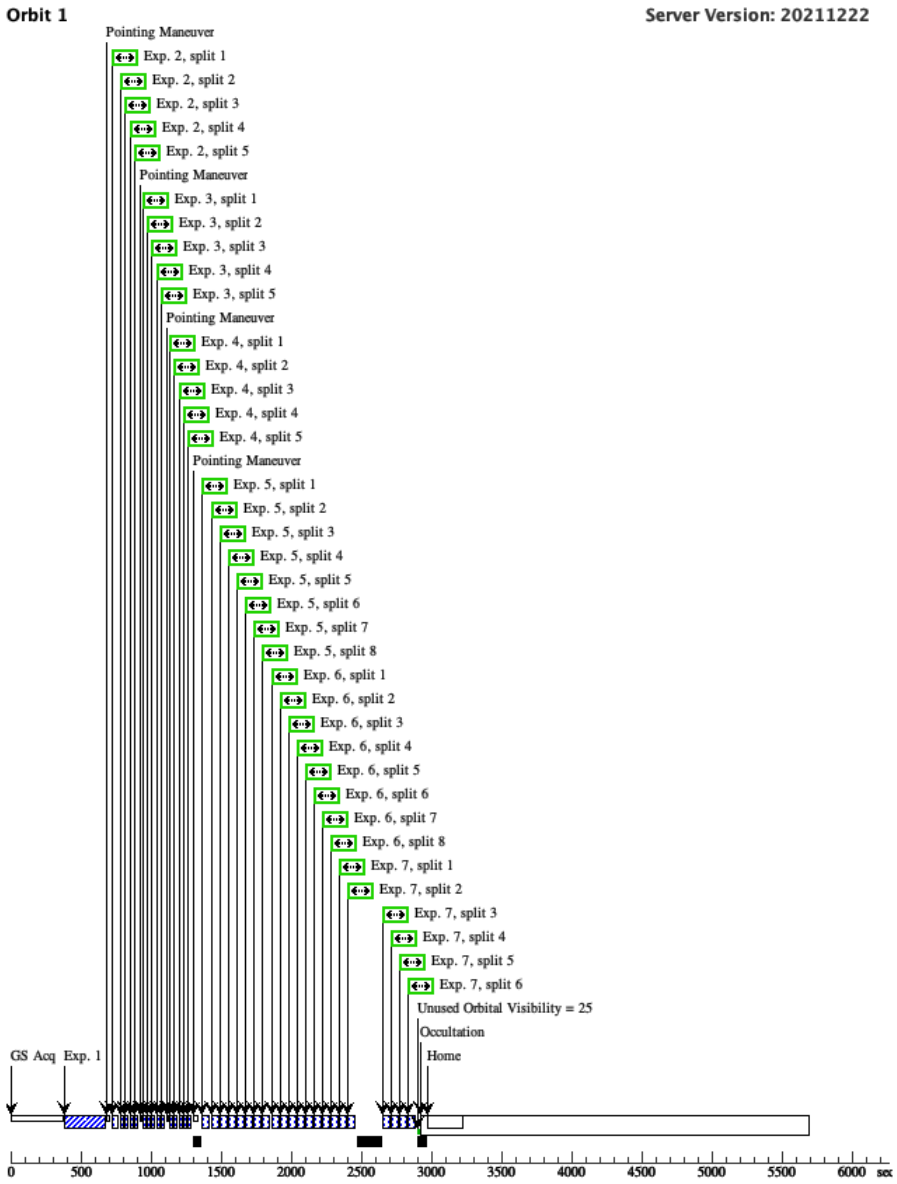
Comments: possible spoiler star from original 2000 program is now at ~5.73" in 2021.
Category=STAR
Description=[M V-IV]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSF-TWHYA_ACQ (STIS.ta.1447816)	(2) PSF-REF-HD85512	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1B3	Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	.7 Secs (0.7 Secs) *[==>]*	***[1]***
	Comments: K6V nearby star V=7.65 *Exptime rounded to nearest 0.1 second, assumed to get SNR=100.*								
2	PSF-TWHYA_BAR5_CENTER	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4		Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	56 Secs (56 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
3	PSF-TWHYA_BAR5_PLUSDITHER	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4	POS TARG 0.0024795,0.0124497	Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	56 Secs (56 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
4	PSF-TWHYA_BAR5_MINUSDITHER	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4	POS TARG -0.0024795,0.0124497	Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	56 Secs (56 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
5	PSF_TWHYA_LONG_1	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; CR-SPLIT=8; GAIN=4		Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	256 Secs (256 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]* *[==>(Split 6)]* *[==>(Split 7)]* *[==>(Split 8)]*	***[1]***
6	PSF_TWHYA_LONG_2	(2) PSF-REF-HD85512	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; GAIN=4; CR-SPLIT=8		Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	256 Secs (256 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]* *[==>(Split 6)]* *[==>(Split 7)]* *[==>(Split 8)]*	***[1]***

	7	PSF_TWHYA_LONG_3 (2) 12	PSF-REF-HD855	STIS/CCD, ACCUM, WEDGEA1.0 MIRROR	SIZEAXIS2=427; GAIN=4; CR-SPLIT=6	Sequence 1-7 Non-Int in V3-PSF-TWHYA (53)	192 Secs (192 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]* *[==>(Split 6)]*	***[1]***

Orbit Structure



Visit

Proposal 16228, V4-TWHYA (04), failed Thu Feb 17 20:00:41 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: PCS MODE FINE; GUID TOL 0.005"; GYRO MODE 3GOBAD; SCHED 100%; ORIENT 15D TO 30D FROM 02; AFTER 03 BY 0.5 Orbits TO 1.5 Orbits

Comments: Orientation: We wish to schedule this visit (4) at +30 deg from Visit 2, with the absolute orientation of Visit 2 unconstrained.
We allow a relative orientation tolerence from +15 deg to +30 deg to assist in guide star selection and scheduling.
NOTE to PC: Schedule as close to +30 deg from Visit 2 as possible.

Relative Timing: This visit (4) should immediately follow Visit 3. I.e., They should be executed sequentially in "back-to-back" orbits.

Fixed Targets

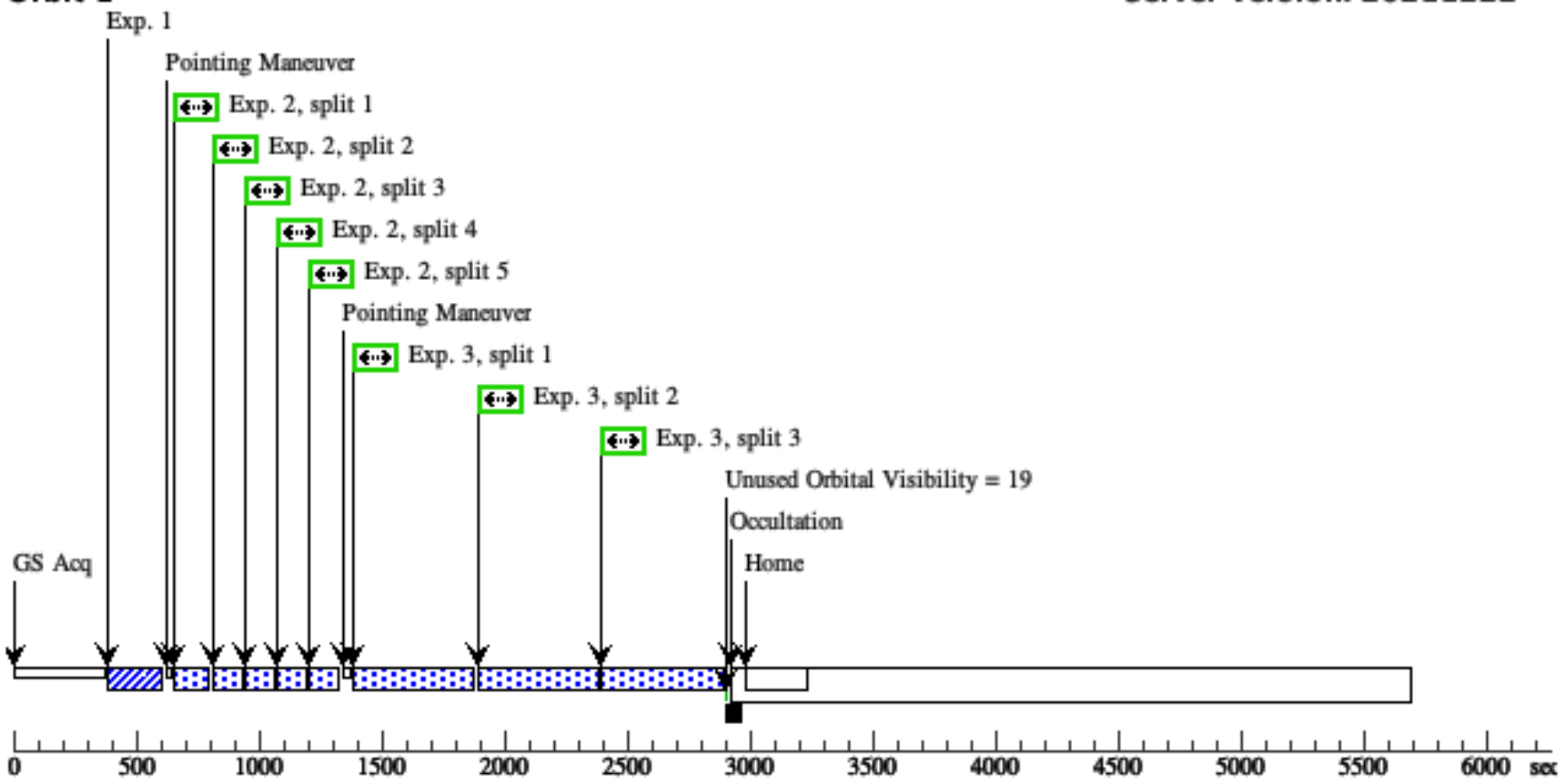
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-TW-HYA	RA: 11 01 51.9129 (165.4663038d) Dec: -34 42 17.00 (-34.70472d) Equinox: J2000	Proper Motion RA: -68.4 mas/yr Proper Motion Dec: -14.02 mas/yr Epoch of Position: 1999.32	V=10.5	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	TWHYA_ACQ (STIS.ta.1447817)	(1) V-TW-HYA	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3	Sequence 1-3 Non-Int in V4-TWHYA (04)	.2 Secs (0.2 Secs) *[==>]*	***[1]***
2	TWHYA_BAR5_CENTER	(1) V-TW-HYA	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4		Sequence 1-3 Non-Int in V4-TWHYA (04)	550 Secs (550 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
3	TWHYA_LONG_1	(1) V-TW-HYA	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; CR-SPLIT=3; GAIN=4		Sequence 1-3 Non-Int in V4-TWHYA (04)	1425 Secs (1425 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16228, V4-TWHYA (54), completed Thu Feb 17 20:00:41 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: PCS MODE FINE; GUID TOL 0.005"; GYRO MODE 3GOBAD; SCHED 100%; ORIENT 250D TO 262 D; ORIENT 296D TO 360 D; AFTER 53 BY 0.5 D TO 1.5 D

Comments: Orientation: We wish to schedule this visit (4) at +30 deg from Visit 2, with the absolute orientation of Visit 2 unconstrained.
We allow a relative orientation tolerence from +15 deg to +30 deg to assist in guide star selection and scheduling.
NOTE to PC: Schedule as close to +30 deg from Visit 2 as possible.

Relative Timing: This visit (4) should immediately follow Visit 3. I.e., They should be executed sequentially in "back-to-back" orbits.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-TW-HYA	RA: 11 01 51.9129 (165.4663038d) Dec: -34 42 17.00 (-34.70472d) Equinox: J2000	Proper Motion RA: -68.4 mas/yr Proper Motion Dec: -14.02 mas/yr Epoch of Position: 1999.32	V=10.5	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	TWHYA_ACQ (STIS.ta.1447817)	(1) V-TW-HYA	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3	Sequence 1-3 Non-Int in V4-TWHYA (54)	.2 Secs (0.2 Secs) *[==>]*	***[1]***
2	TWHYA_BAR5_CENTER	(1) V-TW-HYA	STIS/CCD, ACCUM, BAR5	MIRROR	SIZEAXIS2=100; CR-SPLIT=5; GAIN=4		Sequence 1-3 Non-Int in V4-TWHYA (54)	550 Secs (550 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[1]***
3	TWHYA_LONG_1	(1) V-TW-HYA	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	SIZEAXIS2=427; CR-SPLIT=3; GAIN=4		Sequence 1-3 Non-Int in V4-TWHYA (54)	1425 Secs (1425 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[1]***

Orbit Structure