15487 - Standard Stars for the JWST Mission and CALSPEC Legacy

Cycle: 25, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Ralph C. Bohlin (PI) (Contact)	**Space Telescope Science Institute**	**bohlin@stsci.edu**
Dr. Karl D. Gordon (CoI)	Space Telescope Science Institute	kgordon@stsci.edu
Dr. Susana E. Deustua (CoI)	Space Telescope Science Institute	deustua@stsci.edu
Dr. George Rieke (CoI)	University of Arizona	ghrieke@gmail.com
Dr. Linda J. Smith (CoI) (ESA Member)	Space Telescope Science Institute - ESA	lsmith@stsci.edu
Dr. Kevin Volk (CoI)	Space Telescope Science Institute	volk@stsci.edu
Greg Sloan (CoI)	Space Telescope Science Institute	gcsloan@stsci.edu
Dr. Kathleen E. Kraemer (CoI)	Boston College	kathleen.kraemer@bc.edu
Dr. Martha L. Boyer (CoI)	Space Telescope Science Institute	mboyer@stsci.edu
Dr. Stacey N Bright (CoI)	Space Telescope Science Institute	bright@stsci.edu
Dr. Dean C. Hines (CoI)	Space Telescope Science Institute	hines@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(19) SDSSJ151421.27+004752.8 NONE WAVE	STIS STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	07-Dec-2018 17:00:57.0	yes

2 Total Orbits Used

ABSTRACT

Stellar standards are required for JWST, WFIRST, and LUVOIR flux calibrations and for the science programs of the general astronomical community. In particular, measuring the relative fluxes of redshifted supernovae Ia's is essential for determining the nature of the dark energy that is driving the observed accelerating cosmic expansion. The precision of determining the cosmological constants is tied directly to the precision of the relative flux calibration as a function of wavelength. The CALSPEC archive of HST/STIS spectral energy distributions (SEDs) has become the reference gold-standard database for the best fundamental flux standards that are currently available. This proposal will significantly improve the legacy value of CALSPEC by verifying the utility of the several WD standards that have been established by fitting WD models to WFC3 photometry and will extend the CALSPEC archive to standards fainter by about 3 mag.

OBSERVING DESCRIPTION

The limit of STIS dynamic range is around V=16, while fainter standards are required for larger telescopes, eg. LSST and Pan-STARRS. This void is being filled by the A. Saha HST programs 12967, 13711, and 15113, which observes WD stars and models ground-based spectra of their Balmer lines to determine Teff and log g. Then, WD models fitted to WFC3 photometry determine absolute SEDs that include interstellar extinction effects (Narayan et al. 2016). The brightest of the Saha program WDs, SDSS J151421 at Sloan g=15.7, requires only 2 STIS orbits and will produce a new CALSPEC standard that provides an essential, minimal confirmation and an error estimate for the model fitting techniques of the Saha pro- gram. The STIS SED provides a more precise constraint on extinction from the interstellar Dust than is currently possible with the Saha program of WFC3 broadband photometry. This verification is essential for certifying the Saha WDs as precise flux standards that are worthy of inclusion in CALSPEC.

Visit		
	Proposal 15487, SDSS151421 (01), implementation	Fri Dec 07 22:00:58 GMT 2018
	Diagnostic Status: Error	
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS, STIS/FUV-MAMA	
	Special Requirements: BEFORE 15-JUN-2019:00:00:00	

Diagnostics	(SDSS151421 (01)) Error (Orbit Planner): ILLEGAL MSMOFF MODE EXPOSURE
	(SDSS151421 (01)) Error (Orbit Planner): ILLEGAL MSMOFF MODE EXPOSURE
	(MSOFF zero (01.002)) Error (Form): Default Exposure Time not allowed for this exposure.
	(MSOFF zero (01.002)) Error (Form): GRATING1 is not a valid selection
	(MSOFF zero (01.002)) Error (Form): Illegal selection: STIS.
	(MSOFF zero (01.002)) Error (Form): MSMOFF is not a valid selection.
	(MSOFF zero (01.002)) Error (Form): SETOFFSET is not a valid selection
	(MSOFF zero (01.002)) Error (Form): Target NONE is no longer a valid selection
	(MSOFF zero (01.002)) Error (Form): This attribute is not allowed to have this value: Calibration_Target = NONE It is an Available option and cannot normally be used in a GO proposal.
	(MSOFF zero (01.002)) Error (Form): This attribute is not allowed to have this value: Config = STIS It is a Restricted option and can only be used in an engineering proposal.
	(MSOFF zero (01.002)) Error (Form): This attribute is not allowed to have this value: Mode = MSMOFF It is a Restricted option and can only be used in an engineering proposal.
	(MSOFF RESTORE (01.007)) Error (Form): Default Exposure Time not allowed for this exposure.
	(MSOFF RESTORE (01.007)) Error (Form): GRATING1 is not a valid selection
	(MSOFF RESTORE (01.007)) Error (Form): Illegal selection: STIS.
	(MSOFF RESTORE (01.007)) Error (Form): MSMOFF is not a valid selection.
	(MSOFF RESTORE (01.007)) Error (Form): SETOFFSET is not a valid selection
	(MSOFF RESTORE (01.007)) Error (Form): Target NONE is no longer a valid selection
	(MSOFF RESTORE (01.007)) Error (Form): This attribute is not allowed to have this value: Calibration_Target = NONE It is an Available option and cannot normally be used in a GO proposal.
	(MSOFF RESTORE (01.007)) Error (Form): This attribute is not allowed to have this value: Config = STIS It is a Restricted option and can only be used in an engineering proposal.
	(MSOFF RESTORE (01.007)) Error (Form): This attribute is not allowed to have this value: Mode = MSMOFF It is a Restricted option and can only be used in an engineering proposal.
	(G750L fringe (01.012)) Error (Form): Illegal selection: 0.3X0.09.
	(G750L fringe (01.012)) Error (Form): LAMP is not a valid selection
	(G750L fringe (01.012)) Error (Form): Target NONE is no longer a valid selection
	(G750L fringe (01.012)) Error (Form): This attribute cannot have this value due to other choices: Aperture=0.3X0.09. This value is by default illegal.
	(G750L fringe (01.012)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LAMP. The combination of attributes chosen is illegal.
	(G750L fringe (01.012)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LAMP=TUNGSTEN. The combination of attributes chosen is illegal.
	(G750L fringe (01.012)) Error (Form): This attribute is not allowed to have this value: Calibration_Target = NONE It is an Available option and cannot normally be used in a GO proposal.
	(SDSS151421 (01)) Warning (Orbit Planner): EXPOSURE NOT IN REQUESTED ORBIT
	(SDSS151421 (01)) Warning (Orbit Planner): EXPOSURE NOT IN REQUESTED ORBIT
	(SDSS151421 (01)) Warning (Orbit Planner): EXPOSURE NOT IN REQUESTED ORBIT
	(SDSS151421 (01)) Warning (Orbit Planner): GAP IN NON-INT SEQUENCE DUE TO ORBIT-NUMBER
	(SDSS151421 (01)) Warning (Orbit Planner): MISSING FRINGE FLAT CALIBRATION
	(SDSS151421 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(SDSS151421 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(G140L (01.003)) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(G230L (01.005)) Warning (Form): Sensitive exposures should have an ETC run number provided.

Fixed Targets

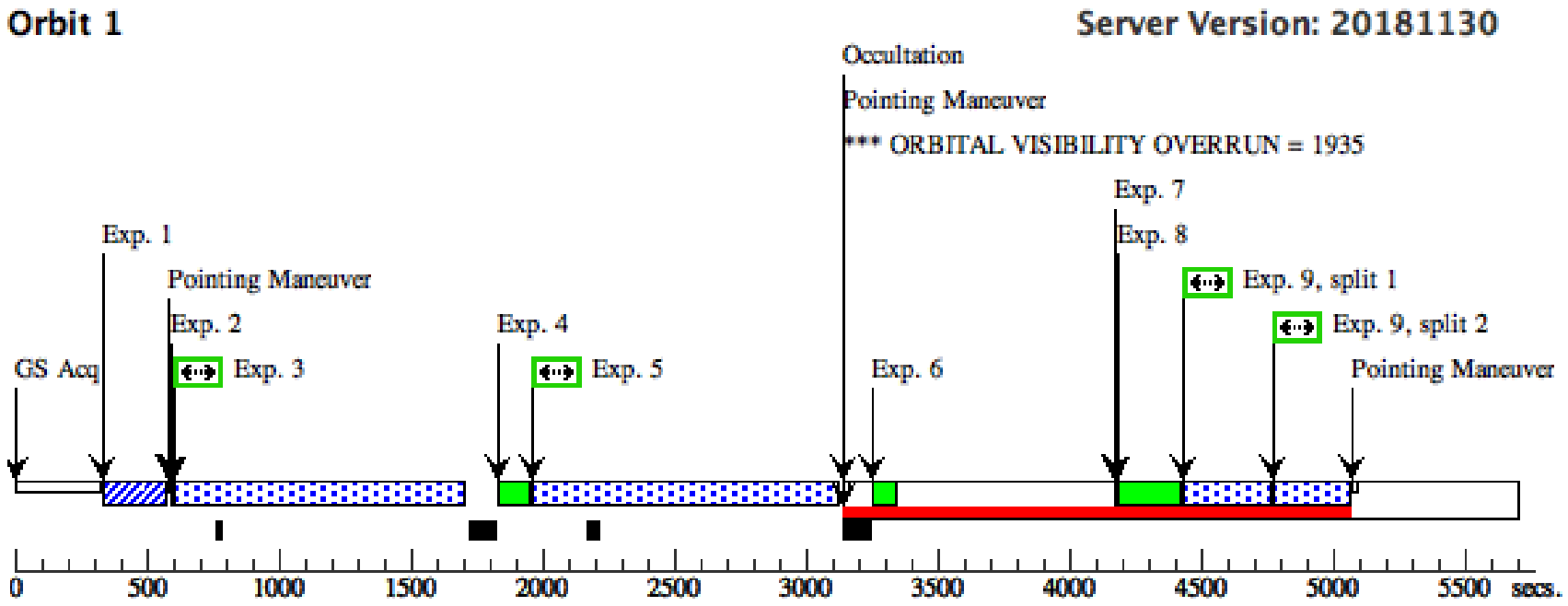
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(19)	SDSSJ151421.27+004752.8	RA: 15 14 21.2800 (228.5886667d) Dec: +00 47 52.88 (.79802d) Equinox: J2000	Proper Motion RA: -3 mas/yr Proper Motion Dec: -28 mas/yr Epoch of Position: 2000	V=16.5	Reference Frame: ICRS

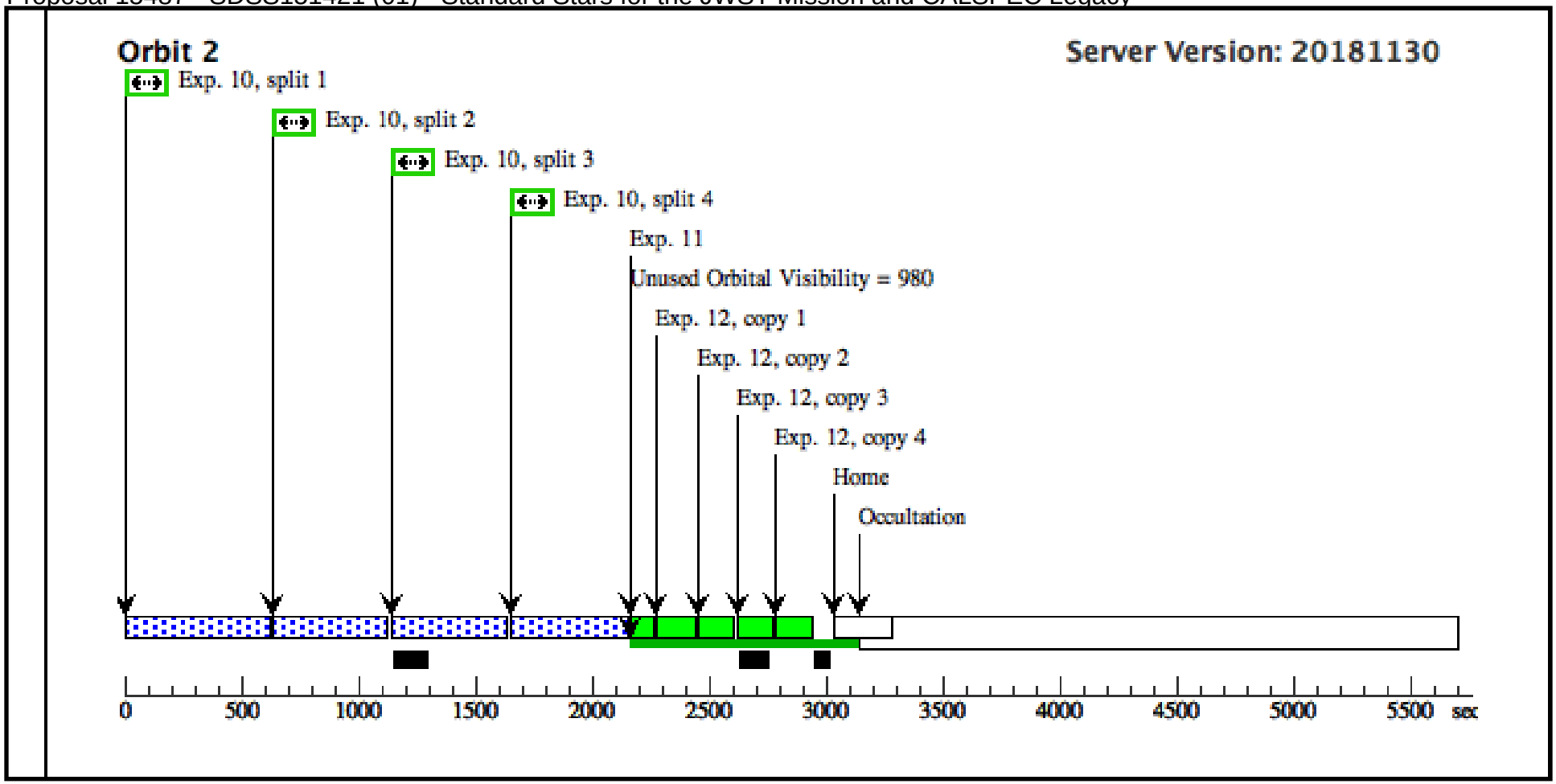
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1167417)	(19) SDSSJ151421.27+004752.8	STIS/CCD, ACQ, F28X50LP	MIRROR				3 Secs (3 Secs) *[==>]*	*[1]*
2	MSOFF zero	NONE	STIS, MSMOFF		SETOFFSET=ZERO; GRATING1=ALL			*[==>]*	*[1]*
3	G140L	(19) SDSSJ151421.27+004752.8	STIS/FUV-MAMA, ACCUM, 52X2	G140L 1425 A	WAVECAL=NO			950 Secs (950 Secs) *[==>]*	*[1]*
4	G140L WAVE	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.05	G140L 1425 A				*[==>]*	*[1]*
5	G230L	(19) SDSSJ151421.27+004752.8	STIS/NUV-MAMA, ACCUM, 52X2	G230L 2376 A	WAVECAL=NO			964 Secs (964 Secs) *[==>]*	*[1]*
6	G230L Wave	WAVE	STIS/NUV-MAMA, ACCUM, 31X0.05NDC	G230L 2376 A				*[==>]*	*[1]*
7	MSOFF RESTORE	NONE	STIS, MSMOFF		SETOFFSET=RESTORE; GRATING1=ALL			*[==>]*	*[1]*
8	G430L WAVE	WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A			Sequence 8-12 Non-Int in SDSS151421 (01)	*[==>]*	*[1]*
9	G430L E1 (1167426)	(19) SDSSJ151421.27+004752.8	STIS/CCD, ACCUM, 52X2E1	G430L 4300 A	CR-SPLIT=2; GAIN=1; WAVECAL=NO		Sequence 8-12 Non-Int in SDSS151421 (01)	500 Secs (500 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
10	G750L	(19) SDSSJ151421.27+004752.8	STIS/CCD, ACCUM, 52X2	G750L 7751 A	CR-SPLIT=4; GAIN=1; WAVECAL=NO		Sequence 8-12 Non-Int in SDSS151421 (01)	1856 Secs (1856 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[2]*
Comments: Manual fringe flat used instead of default to get higher S/N.									
11	G750L WAVE	WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A			Sequence 8-12 Non-Int in SDSS151421 (01)	*[==>]*	*[2]*
12	G750L fringe	NONE	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A	LAMP=TUNGSTEN; GAIN=4		Sequence 8-12 Non-Int in SDSS151421 (01)	120 Secs X 4 (480 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]*	*[2]*

Orbit Structure




Orbit 2
Server Version: 20181130
Exp. 10, split 1
Exp. 10, split 2
Exp. 10, split 3
Exp. 10, split 4
Exp. 11
Unused Orbital Visibility = 980
Exp. 12, copy 1
Exp. 12, copy 2
Exp. 12, copy 3
Exp. 12, copy 4
Home
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec