



15995 - The Nature of Jets in Hybrid MOJAVE Blazars

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) QSO-J0217+0144	WFC3/IR WFC3/UVIS	2	12-Jun-2020 17:00:12.0	yes
02	(2) ICRF-J073352.5+502209	WFC3/IR WFC3/UVIS	2	12-Jun-2020 17:00:12.0	yes
03	(3) QSO-B1036+054	WFC3/IR WFC3/UVIS	2	12-Jun-2020 17:00:13.0	yes
04	(4) QSO-B1730-130	WFC3/IR WFC3/UVIS	2	12-Jun-2020 17:00:14.0	yes

8 Total Orbits Used

ABSTRACT

We propose to observe the cores, jets and external environments of four hybrid blazars that have an FRI-like jet on one side and an FRII-like jet on the other. These hybrid blazars belong to the MOJAVE survey which has been monitoring the parsec-scale jets of >100 blazars in the northern hemisphere over more than two decades. The Chandra and HST data will be used to construct broadband spectral energy distributions at several locations along the jet to determine if the X-ray emission is synchrotron or inverse-Compton in origin. The proposed X-ray and optical data will be utilized along with extensive complementary data at radio and gamma-ray frequencies on both parsec and kpc scales, to probe into the causes of the Fanaroff-Riley dichotomy in jets.

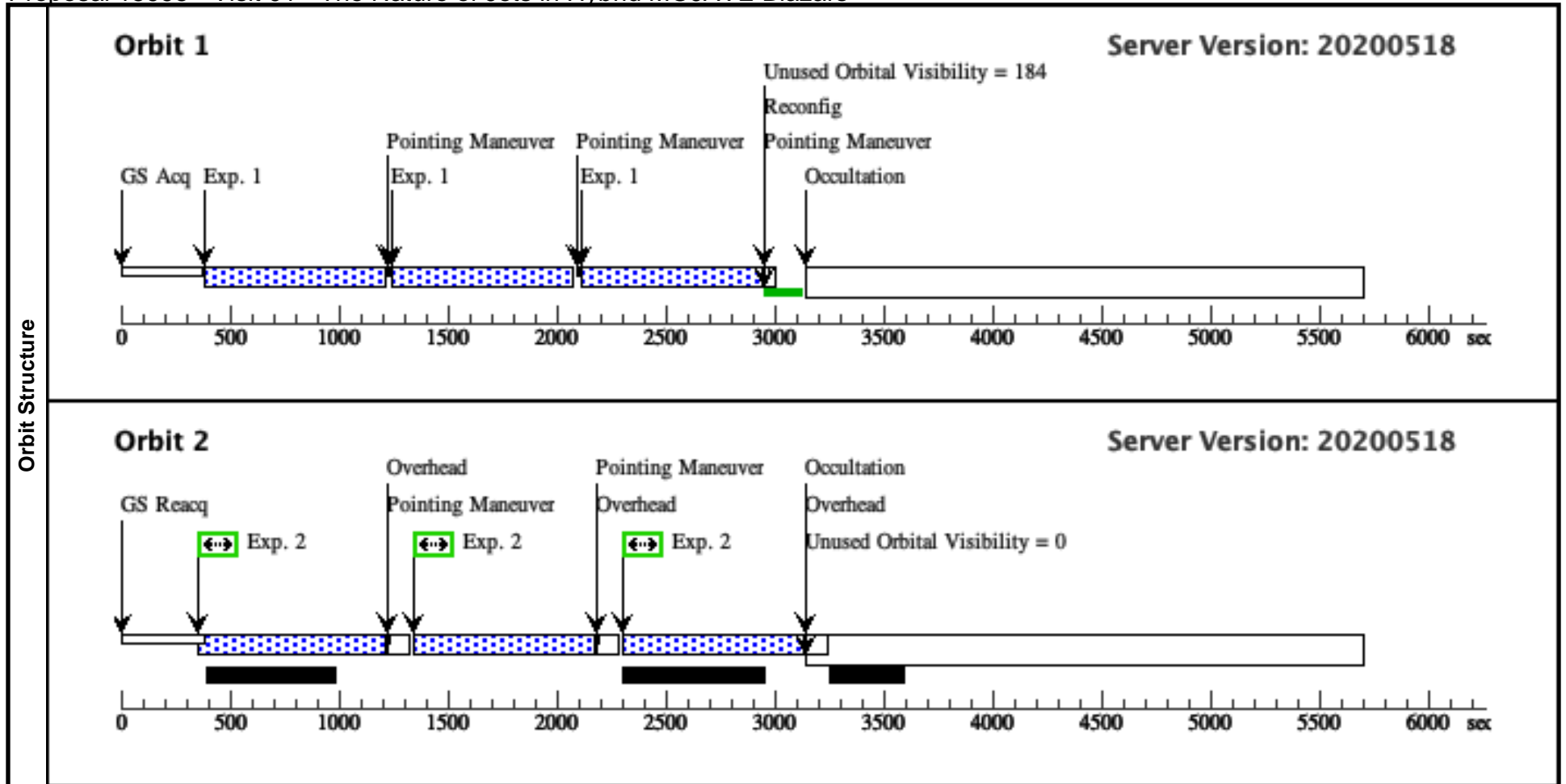
OBSERVING DESCRIPTION

We will observe the 4 quasars with arcsecond-scale radio jets, viz., PKS 0215+015, TXS 0730+504, PKS 1036+054 and PKS 1730-130, through the Wide Field Camera 3 (WFC3) on board HST, through the F160W (IR channel) and the F475W (UVIS channel) filters. The aim is to detect optical emission at various locations or knots along the jets of these quasars. Spectral index images will be made for these jet knots to understand the jet emission mechanism(s). Each target will be observed through each of the 2 filters (F160W and F475W) for 1 HST orbit each, giving a total of 8 orbits. Each orbit/visit is divided into 3 (sub-)exposures to create a 3-point LINE DITHER pattern.

Proposal 15995 - Visit 01 - The Nature of Jets in Hybrid MOJAVE Blazars

Fri Jun 12 21:00:15 GMT 2020

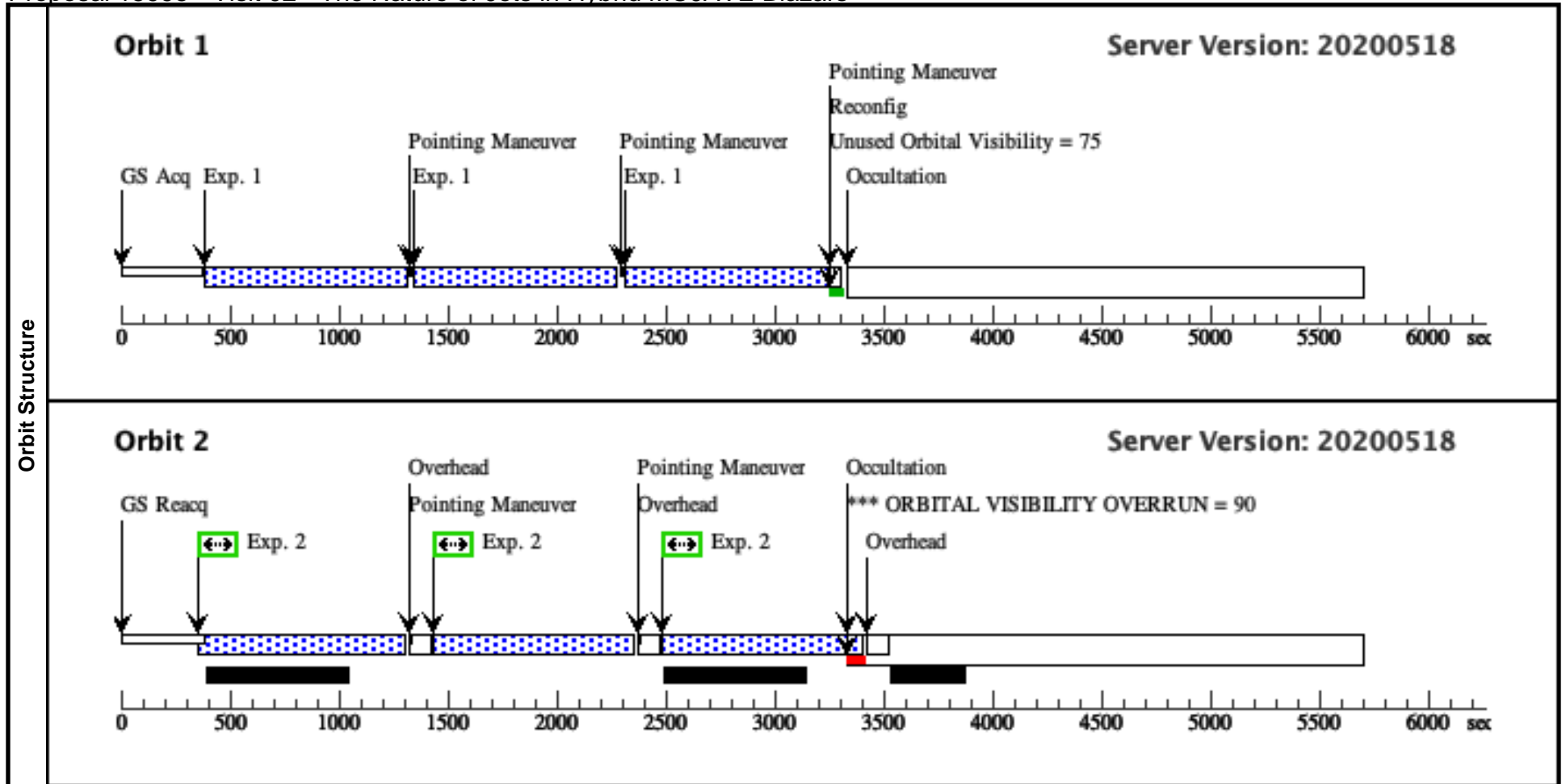
Visit	Proposal 15995, Visit 01, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: ORIENT 65D TO 105 D; ORIENT 155D TO 195 D; ORIENT 245D TO 285 D; ORIENT 335D TO 15 D Comments: Observing QSO-J0217+0144 through IR filter F160W and UVIS filter F475W. Jet PA = 130 deg									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	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)					
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	QSO-J0217+0144	RA: 02 17 48.9548 (34.4539783d) Dec: +01 44 49.70 (1.74714d) Equinox: J2000	Epoch of Position: 2015.5	V=16.09	Reference Frame: SIMBAD				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=GALAXY Description=[ELLIPTICAL, JET, QUASAR]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) QSO-J0217+0144 4	WFC3/IR, MULTIACCUM, IR-UVIS-FIX	F160W	SAMP-SEQ=SPARS 100; NSAMP=9		Pattern 1, Exps 1-1 in Visit 01 (1)	802.934875 Secs (2408.805 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
2		(1) QSO-J0217+0144 4	WFC3/UVIS, ACCUM, UVIS-IR-FIX	F475W		POS TARG 0,20	Pattern 2, Exps 2-2 in Visit 01 (2)	433 Secs (2486 Secs) [=>828 Secs (Pattern 1)] [=>828 Secs (Pattern 2)] [=>830 Secs (Pattern 3)]	[2]	



Proposal 15995 - Visit 02 - The Nature of Jets in Hybrid MOJAVE Blazars

Fri Jun 12 21:00:15 GMT 2020

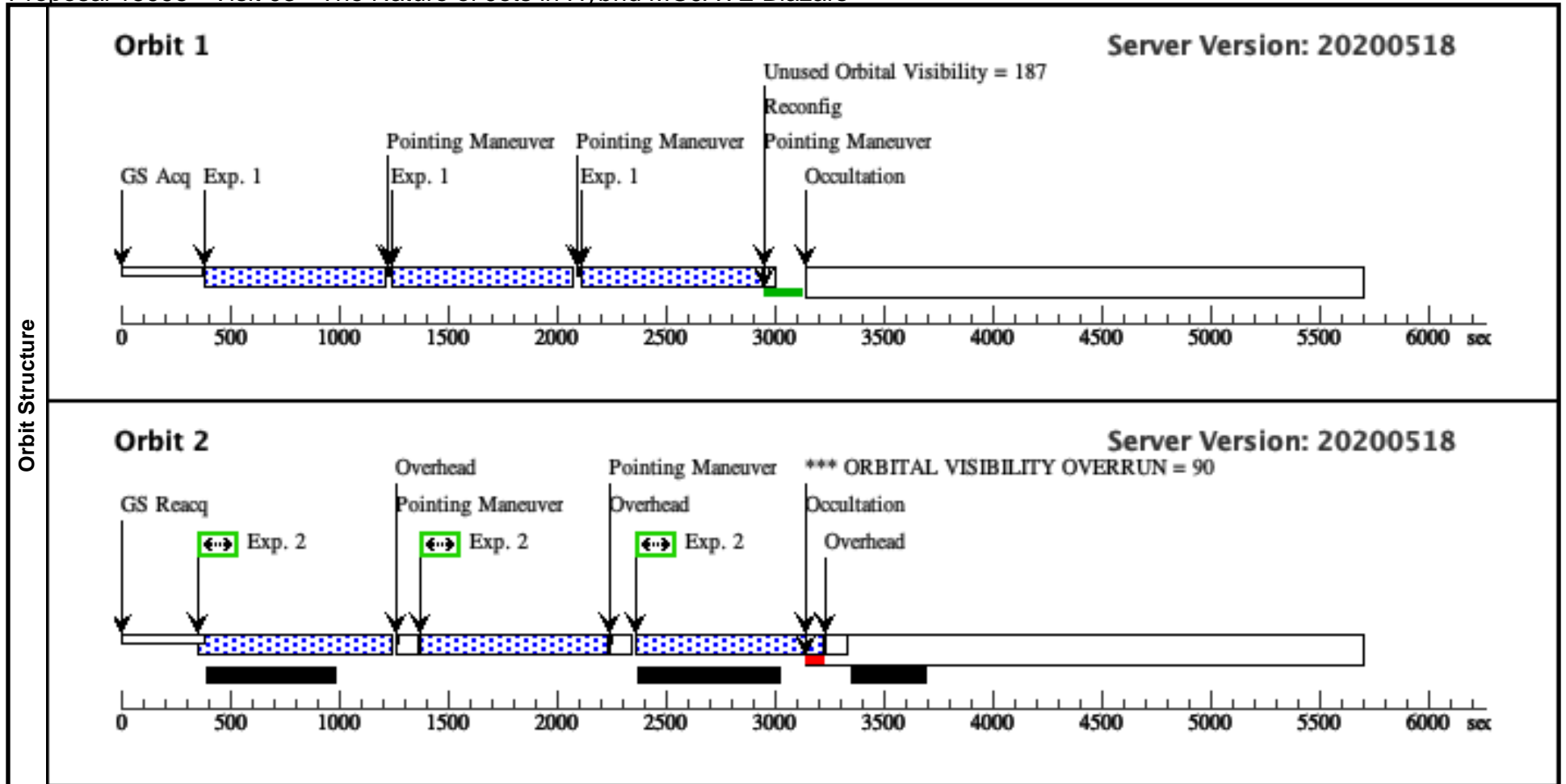
Visit	Proposal 15995, Visit 02, completed Diagnostic Status: Warning Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: ORIENT 175D TO 215 D; ORIENT 265D TO 305 D; ORIENT 355D TO 35 D; ORIENT 85D TO 125 D Comments: Observing ICRF-J073352.5+502209 through IR filter F160W and UVIS filter F475W. Jet PA = 240 deg									
	Diagnosics (Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
Patterns	#	Primary Pattern			Secondary Pattern			Exposures		
	(1)	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)		
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(2)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(2)	ICRF-J073352.5+502209	RA: 07 33 52.5217 (113.4688404d) Dec: +50 22 9.06 (50.36918d) Equinox: J2000	Proper Motion RA: 7.44180240736915E-5 sec of time/yr Proper Motion Dec: 3.7E-5 arcsec/yr Epoch of Position: 2015.5		V=19.3	Reference Frame: SIMBAD			
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=GALAXY Description=[ELLIPTICAL, JET, QUASAR]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) ICRF-J073352.5+502209	WFC3/IR, MULTIACCUM, IR-UVIS-FIX	F160W	NSAMP=10; SAMP-SEQ=SPAR S100		Pattern 1, Exps 1-1 in Visit 02 (1)	902.935198 Secs (2708.806 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2		(2) ICRF-J073352.5+502209	WFC3/UVIS, ACCUM, UVIS-IR-FIX		F475W		POS TARG 0,20	Pattern 2, Exps 2-2 in Visit 02 (2)	433 Secs (2767 Secs) [==>922 Secs (Pattern 1)] [==>922 Secs (Pattern 2)] [==>923 Secs (Pattern 3)]	[2]



Proposal 15995 - Visit 03 - The Nature of Jets in Hybrid MOJAVE Blazars

Fri Jun 12 21:00:15 GMT 2020

Visit	<p>Proposal 15995, Visit 03, completed</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: WFC3/IR, WFC3/UVIS</p> <p>Special Requirements: ORIENT 350D TO 30 D; ORIENT 80D TO 120 D; ORIENT 170D TO 210 D; ORIENT 260D TO 300 D</p> <p><i>Comments: Observing QSO-B1036+054 through IR filter F160W and UVIS filter F475W.</i></p> <p><i>Jet PA = 55 deg</i></p>									
	<p>Diagnosics</p> <p>(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>									
Patterns	#	Primary Pattern			Secondary Pattern			Exposures		
	(1)	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)		
(2)	Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(2)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(3)	QSO-B1036+054	RA: 10 38 46.7772 (159.6949050d) Dec: +05 12 29.08 (5.20808d) Equinox: J2000	Proper Motion RA: -1.7425271618865174E-4 sec of time/yr Proper Motion Dec: -5.559999181059538E-4 arcsec/yr Epoch of Position: 2015.5	V=19.45	Reference Frame: SIMBAD				
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p> <p><i>Category=GALAXY</i></p> <p><i>Description=[ELLIPTICAL, JET, QUASAR]</i></p>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(3) QSO-B1036+054	WFC3/IR, MULTIACCUM, IR-UVIS-FIX	F160W	NSAMP=9; SAMP-SEQ=SPAR S100			Pattern 1, Exps 1-1 i n Visit 03 (1)	802.934875 Secs (2408.805 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	(3) QSO-B1036+054	WFC3/UVIS, ACCUM, UVIS-IR-FIX	F475W			POS TARG 0,20	Pattern 2, Exps 2-2 i n Visit 03 (2)	433 Secs (2579 Secs) [==>860 Secs (Pattern 1)] [==>860 Secs (Pattern 2)] [==>859 Secs (Pattern 3)]	[2]	



Proposal 15995 - Visit 04 - The Nature of Jets in Hybrid MOJAVE Blazars

Fri Jun 12 21:00:15 GMT 2020

Visit	Proposal 15995, Visit 04, completed Diagnostic Status: Warning Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: ORIENT 27D TO 67 D; ORIENT 117D TO 157 D; ORIENT 207D TO 247 D; ORIENT 297D TO 337 D <i>Comments: Observing QSO-B1730-130 through IR filter F160W and UVIS filter F475W.</i> <i>Jet PA = 2 deg</i>									
	Diagnosics (Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(1)	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)						
(2)	Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)							
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	QSO-B1730-130	RA: 17 33 2.7058 (263.2612742d) Dec: -13 04 49.55 (-13.08043d) Equinox: J2000	Epoch of Position: 2015.5	V=18.5	Reference Frame: SIMBAD				
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=GALAXY Description=[ELLIPTICAL, JET, QUASAR]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(4) QSO-B1730-130	WFC3/IR, MULTIACCUM, IR-UVIS-FIX	F160W	NSAMP=9; SAMP-SEQ=SPAR S100			Pattern 1, Exps 1-1 i n Visit 04 (1)	802.934875 Secs (2408.805 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	(4) QSO-B1730-130	WFC3/UVIS, ACCUM, UVIS-IR-FIX	F475W			POS TARG 0,20	Pattern 2, Exps 2-2 i n Visit 04 (2)	433 Secs (2583 Secs) [==>861 Secs (Pattern 1)] [==>861 Secs (Pattern 2)] [==>861 Secs (Pattern 3)]	[2]	

