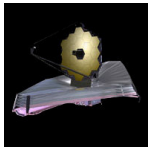

1177 - MIRI observations of transiting exoplanets

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

Name	*Institution*
Dr. Thomas P. Greene (PI)	**NASA Ames Research Center**
Everett Schlawin (CoI) (Contact)	University of Arizona
Dr. Pierre-Olivier Lagage (CoI) (ESA Member)	Commissariat a l'Energie Atomique (CEA)
Dr. Marcia J. Rieke (CoI)	University of Arizona
Dr. Taylor James Bell (CoI)	Bay Area Environmental Research Institute

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
MIRI LRS Transiting Planets				
	1	WASP-80b TRANS	MIRI Low Resolution Spectroscopy	(1) WASP-80
	2	WASP-80b EMIS	MIRI Low Resolution Spectroscopy	(1) WASP-80
	3	WASP-69 b EMIS	MIRI Low Resolution Spectroscopy	(2) WASP-69
	4	GJ 436b EMIS	MIRI Low Resolution Spectroscopy	(3) GJ-436
	5	GJ 436b EMIS	MIRI Low Resolution Spectroscopy	(3) GJ-436
	6	HAT-P-26 b TRANS	MIRI Low Resolution Spectroscopy	(4) HAT-P-26B
MIRIM Transiting Planets				
	7	TRAPPIST-1 b Sec Eclipse	MIRI Imaging	(5) TRAPPIST-1B
	8	TRAPPIST-1 b Sec Eclipse	MIRI Imaging	(5) TRAPPIST-1B
	9	TRAPPIST-1 b Sec Eclipse	MIRI Imaging	(5) TRAPPIST-1B
	10	TRAPPIST-1 b Sec Eclipse	MIRI Imaging	(5) TRAPPIST-1B

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
	11	TRAPPIST-1 b Sec Eclipse	MIRI Imaging	(5) TRAPPIST-1B

ABSTRACT

We will observe the 5 - 15 micron spectra or photometry of a set of transiting planets that are less massive and cooler than ones spectrally characterized so far with HST and Spitzer. These planets fall mostly in the temperature range 400 – 1000 K with 1 – 200 Earth mass. We seek to obtain transmission and emission spectra (both for at least one planet) to probe a wide range of atmospheric pressures (altitudes) and surface regions. Simulations of these spectra and information retrievals show that we can measure mixing ratios of dominant molecular species, measure metallicities, determine pressure-temperature profiles, and perhaps detect new species not seen before in exoplanet atmospheres. We plan to observe four ice or gas giant planet spectra with the MIRI LRS and make 5 secondary eclipse observations of TRAPPIST-1 b using the MIRI imager in the F1500W filter. These 11 MIRI observations are conducted under T. Greene's GTO program and correspond to Observation IDs GREENE_0001-11 in the summary observation specification spreadsheet submitted in March 2017 with one change: HAT-P-19 b has been replaced with WASP-69 b. The TRAPPIST-1 observations and spectroscopic observations of WASP-107b are being done in collaboration with the European MIRI GTO team (Wright PI). The other observations are being done in collaboration with NIRCam GTO team (M. Rieke PI). We will use state-of-the-art modeling and retrieval framework to derive physical and chemical properties from the combined NIRCam and MIRI exoplanet spectra.

OBSERVING DESCRIPTION

This file contains the specifications of the MIRI component of our transiting planet spectroscopy and imaging photometry program.

Time-series observations will be taken using either the MIRI LRS in slitless mode (targets WASP-80 b, HAT-P-19 b, GJ 436 b, and HAT-P-26 b) or with the MIRI imager (TRAPPIST-1 b). Each science observation consists of a single exposure. We do not allow parallel observations (in line with other JWST time-series modes). We require precise target acquisition for all observations, a standard component of all other JWST time-series observations.

These observations have 2 types of timing constraints:

1. Precise timing starts phased with observing either transits or secondary eclipses as desired. We specify a +/- 30 minute start window, and the dwell time of each exposure is 0.75 hr + MAX(2 hr, T14) + T14 + 1 hr. The first 0.75 hr is for detector settling, and the 1 hr at the end is for the exposure timing window.
2. PA constraints to avoid spectral contamination from nearby bright stars.

PA constraints for the MIRI Imager observations of TRAPPIST-1 are set to get a nearby K = 13.5 2MASS star in the imager field at the same time. I may wish to change this in the future to get a slightly brighter star instead. That will require entering a significant coordinate offset and changing the PA constraints.

I also specified V3 PA = 0 to 359.5 deg for otherwise unconstrained observations in order to achieve better visibilities (better guide star access)

We have chosen exposure parameters to achieve about 55 - 65% full-well (~110,000 - 135,00) electrons for the science integrations and slightly lower for target acquisition integrations.

This is a summary of our 11 observations. All

Obs#	Obs ID	TARGET	PHASE*	MODE / SUBARRAY**
1	GREENE_0002	WASP-80 b	1.0	LRS SLITLESSPRISM
2	GREENE_0001	WASP-80 b	0.5	LRS SLITLESSPRISM
3	GREENE_0003	WASP-69 b	0.5	LRS SLITLESSPRISM
4	GREENE_0004	GJ 436 b	0.5865	LRS SLITLESSPRISM
5	GREENE_0005	GJ 436 b	0.5865	LRS SLITLESSPRISM
6	GREENE_0006	HAT-P-26 b	1.0	LRS SLITLESSPRISM
7	GREENE_0007	TRAPPIST-1 b	0.5	MIRIM FULL
8	GREENE_0008	TRAPPIST-1 b	0.5	MIRIM FULL
9	GREENE_0009	TRAPPIST-1 b	0.5	MIRIM FULL
10	GREENE_0010	TRAPPIST-1 b	0.5	MIRIM FULL
11	GREENE_0011	TRAPPIST-1 b	0.5	MIRIM FULL

*PHASE 1.0 corresponds to transits / transmission observations. Phase = 0.5 corresponds to a secondary eclipse/ emission observation for planets with zero eccentricity orbits. GJ 436 b is in an eccentric orbit, and its secondary eclipse occurs at the phase noted above . Each observation has precise phase constraints.

** ALL Modes are time-series observations with precision target acquisition, do dither, no parallels

In APT 2021.2, each observation gives HGA movement warnings for exceeding 10,000 s. We are OK with that.

Notes on updates July 2022 post-commissioningupdate (APT 2022.3.1):
- Thomas Beatty and Taylor Bell were added as co-investigators
- Revised coordinates and proper motion for target GJ 436
- No revisions for saturation per MIRI team post-commissioning advice
- Updated transit ephemerides for GJ 436 b (obs 4-5), TRAPPIST-1 b (Obs 7-11)
- Updated phase constraints to move transit observation start times 15 min later (allow 30 min detector settling from commissioning analysis)
- Above changes will shift most observation start times by ~0-20 min but GJ 436 b changes by ~40 minutes (Obs 4 & 5). Exposure durations have not changed by more than ~1 minute.

Notes on September 23, 2022 update:
- Many secondary eclipses of the TRAPPIST-1 b planet will be contaminated by transits or eclipses of other planets in the system. We have used the model in Table 15 of Agol et al. (2021) to determine that only the following events should be observed in the Fall 2022 visibility window, and this was approved by the TTRB on 09/27/2022 (change request 88553). These are the times for phase = 0.5, so applying the phase constraints and exposure durations of observations 7 - 11 should start their exposures between 3.0536 h and 2.0536 h before one of these times and end 4.358 hours later:

BJD_TDB		UT
2459878.1728195	->	2022-10-25 16:08:51.604787
2459879.683461	->	2022-10-27 04:24:11.030418
2459884.216391	->	2022-10-31 17:11:36.182397
2459891.770471	->	2022-11-08 06:29:28.694409
2459896.3034405	->	2022-11-12 19:16:57.259204
2459897.8141695	->	2022-11-14 07:32:24.244801
2459902.346808	->	2022-11-18 20:19:24.211200
2459903.8574855	->	2022-11-20 08:34:46.747214
2459908.390481	->	2022-11-24 21:22:17.558385
2459909.9012125	->	2022-11-26 09:37:44.759995

2459911.412042 -> 2022-11-27 21:53:20.428788
2459914.4338025 -> 2022-11-30 22:24:40.535991
2459915.944503 -> 2022-12-02 10:40:05.059200
2459917.4552285 -> 2022-12-03 22:55:31.742405
2459920.477516 -> 2022-12-06 23:27:37.382413
2459921.9882505 -> 2022-12-08 11:43:04.843204
2459923.499046 -> 2022-12-09 23:58:37.574416

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	WASP-80	RA: 20 12 40.0319 (303.1667996d) Dec: -02 08 39.97 (-2.14444d) Equinox: J2000	Proper Motion RA: -0.008856802653901206 sec of time/yr Proper Motion Dec: -0.050428999907126126 arcsec/yr Parallax: 0.0200565" Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.(Gaia 2015.5 Epoch) *Category=Star* *Description=[Exoplanet Systems, K dwarfs, K stars]* *Extended=NO*				
(2)	WASP-69	RA: 21 00 6.2319 (315.0259663d) Dec: -05 05 41.49 (-5.09486d) Equinox: J2000	Proper Motion RA: 0.0022539720183223475 sec of time/yr Proper Motion Dec: -0.09343599992917007 arcsec/yr Parallax: 0.0199871" Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.(Gaia 2015.5 Epoch) *Category=Star* *Description=[Exoplanet Systems, K dwarfs, K stars]* *Extended=NO*				
(3)	GJ-436	RA: 11 42 12.1620 (175.5506750d) Dec: +26 42 10.63 (26.70295d) Equinox: J2000	Proper Motion RA: 895.087 mas/yr Proper Motion Dec: -813.5498 mas/yr Parallax: 0.10230" Epoch of Position: 2016	
Comments: ES Manually copied from Gaia Archive on 2022-07-26, with the Gaia DR3 coordinates at epoch 2016.0, updated proper motion and parallax. *Category=Star* *Description=[Exoplanet Systems, M dwarfs, M stars]* *Extended=NO*				
(4)	HAT-P-26B	RA: 14 12 37.5722 (213.1565508d) Dec: +04 03 33.90 (4.05942d) Equinox: J2000	Proper Motion RA: 37.8 mas/yr Proper Motion Dec: -142.9 mas/yr Parallax: 0.0070" Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *HAT-P-26 b: K = 9.6 mag, T* = 5079 K, Tpl = 1000 K, Rp = 6.2 Re, Mp = 19 Me* *(Gaia 2015.5 Epoch)* *Category=Star* *Description=[Exoplanet Systems, Exoplanets, K dwarfs, K stars]* *Extended=NO*				
(5)	TRAPPIST-1B	RA: 23 06 30.3341 (346.6263921d) Dec: -05 02 36.46 (-5.04346d) Equinox: J2000	Proper Motion RA: 930.9 mas/yr Proper Motion Dec: -479.4 mas/yr Parallax: 0.0804" Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database (Gaia 2015.5 Epoch) *TRAPPIST-1 star and b planet* *Category=Star* *Description=[Exoplanet Systems, Exoplanets, M dwarfs, M stars]* *Extended=NO*				

Observation

Proposal 1177, Observation 1: WASP-80b TRANS Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Comments: All LRS observations are done in time-series mode with precision target acquisition and no dithers

Diagnostics

(WASP-80b TRANS (Obs 1)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	WASP-80	RA: 20 12 40.0319 (303.1667996d) Dec: -02 08 39.97 (-2.14444d) Equinox: J2000	Proper Motion RA: -0.008856802653901206 sec of time/yr Proper Motion Dec: -0.050428999907126126 arcsec/yr Parallax: 0.0200565" Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.(Gaia 2015.5 Epoch)
Category=Star
Description=[Exoplanet Systems, K dwarfs, K stars]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F1000W	FAST	12	1	1	1.908	85318.8

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	12	1	1	1	1	1.908		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	29	4506	4506	1	1	21498.868	85318.6

Special Requirements

Phase 0.95093 to 0.96454 with period 3.06785234 Days and zero-phase 2456487.42501 HJD
Aperture PA Range 82.015224 to 94.015224 Degrees (V3 77.17977503 to 89.17977503)
Aperture PA Range 111.015224 to 172.015224 Degrees (V3 106.17977503 to 167.17977503)
Aperture PA Range 262.015224 to 273.015224 Degrees (V3 257.17977503 to 268.17977503)
Aperture PA Range 291.015224 to 352.015224 Degrees (V3 286.17977503 to 347.17977503)
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 2: WASP-80b EMIS Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Comments: All LRS observations are done in time-series mode with precision target acquisition and no dithers

Diagnostics

(WASP-80b EMIS (Obs 2)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	WASP-80	RA: 20 12 40.0319 (303.1667996d) Dec: -02 08 39.97 (-2.14444d) Equinox: J2000	Proper Motion RA: -0.008856802653901206 sec of time/yr Proper Motion Dec: -0.050428999907126126 arcsec/yr Parallax: 0.0200565" Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.(Gaia 2015.5 Epoch)
Category=Star
Description=[Exoplanet Systems, K dwarfs, K stars]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F1000W	FAST	12	1	1	1.908	85318.8

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	12	1	1	1	1	1.908		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	29	4506	4506	1	1	21498.868	85318.6

Special Requirements

Phase 0.44754 to 0.46114 with period 3.06785234 Days and zero-phase 2456487.42501 HJD
Aperture PA Range 82.015224 to 94.015224 Degrees (V3 77.17977503 to 89.17977503)
Aperture PA Range 111.015224 to 172.015224 Degrees (V3 106.17977503 to 167.17977503)
Aperture PA Range 262.015224 to 273.015224 Degrees (V3 257.17977503 to 268.17977503)
Aperture PA Range 291.015224 to 352.015224 Degrees (V3 286.17977503 to 347.17977503)
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 3: WASP-69 b EMIS Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Comments: All LRS observations are done in time-series mode with precision target acquisition and no dithers

Diagnostics

(WASP-69 b EMIS (Obs 3)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	WASP-69	RA: 21 00 6.2319 (315.0259663d) Dec: -05 05 41.49 (-5.09486d) Equinox: J2000	Proper Motion RA: 0.0022539720183223475 sec of time/yr Proper Motion Dec: -0.09343599992917007 arcsec/yr Parallax: 0.0199871" Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.(Gaia 2015.5 Epoch)
Category=Star
Description=[Exoplanet Systems, K dwarfs, K stars]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F1000W	FAST	10	1	1	1.59	85318.8

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	10	1	1	1	1	1.59		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	16	8276	8276	1	1	22375.497	85318.11

Special Requirements

Phase 0.45713 to 0.46791 with period 3.8681382 Days and zero-phase 2455748.83422 HJD
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 4: GJ 436b EMIS Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Comments: All LRS observations are done in time-series mode with precision target acquisition and no dithers

Diagnostics

(GJ 436b EMIS (Obs 4)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	GJ-436	RA: 11 42 12.1620 (175.5506750d)	Proper Motion RA: 895.087 mas/yr	
		Dec: +26 42 10.63 (26.70295d)	Proper Motion Dec: -813.5498 mas/yr	
		Equinox: J2000	Parallax: 0.10230"	
			Epoch of Position: 2016	

Comments: ES Manually copied from Gaia Archive on 2022-07-26, with the Gaia DR3 coordinates at epoch 2016.0, updated proper motion and parallax.
Category=Star
Description=[Exoplanet Systems, M dwarfs, M stars]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F1500W	FAST	10	1	1	1.59	85318.8

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	10	1	1	1	1	1.59		F1500W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	5	18075	18075	1	1	17247.729	85318.2

Special Requirements

Phase 0.53496 to 0.55073 with period 2.64389751 Days and zero-phase 2454873.015820 HJD
Aperture PA Range 0 to 359.5 Degrees (V3 355.16455103 to 354.66455103)
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 5: GJ 436b EMIS Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Comments: All LRS observations are done in time-series mode with precision target acquisition and no dithers

Diagnostics

(GJ 436b EMIS (Obs 5)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	GJ-436	RA: 11 42 12.1620 (175.5506750d)	Proper Motion RA: 895.087 mas/yr	
		Dec: +26 42 10.63 (26.70295d)	Proper Motion Dec: -813.5498 mas/yr	
		Equinox: J2000	Parallax: 0.10230"	
			Epoch of Position: 2016	

Comments: ES Manually copied from Gaia Archive on 2022-07-26, with the Gaia DR3 coordinates at epoch 2016.0, updated proper motion and parallax.
Category=Star
Description=[Exoplanet Systems, M dwarfs, M stars]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F1500W	FAST	10	1	1	1.59	85318.8

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	10	1	1	1	1	1.59		F1500W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	5	18075	18075	1	1	17247.729	85318.2

Special Requirements

Phase 0.53496 to 0.55073 with period 2.64389751 Days and zero-phase 2454873.015820 HJD
Aperture PA Range 0 to 359.5 Degrees (V3 355.16455103 to 354.66455103)
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 6: HAT-P-26 b TRANS Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Comments: All LRS observations are done in time-series mode with precision target acquisition and no dithers

Diagnostics

(HAT-P-26 b TRANS (Obs 6)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	HAT-P-26B	RA: 14 12 37.5722 (213.1565508d)	Proper Motion RA: 37.8 mas/yr	
		Dec: +04 03 33.90 (4.05942d)	Proper Motion Dec: -142.9 mas/yr	
		Equinox: J2000	Parallax: 0.0070"	
			Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
HAT-P-26 b: K = 9.6 mag, T = 5079 K, Tpl = 1000 K, Rp = 6.2 Re, Mp = 19 Me*
(Gaia 2015.5 Epoch)
Category=Star
Description=[Exoplanet Systems, Exoplanets, K dwarfs, K stars]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	FAST	12	1	1	1.908	85318.8

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	12	1	1	1	1	1.908		F560W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	90	1660	1660	1	1	24024.423	85318.1

Special Requirements

Phase 0.96107 to 0.97093 with period 4.2345023 Days and zero-phase 2455304.65218 HJD
Aperture PA Range 17.015224 to 155.015224 Degrees (V3 12.17977503 to 150.17977503)
Aperture PA Range 200.015224 to 335.015224 Degrees (V3 195.17977503 to 330.17977503)
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 7: TRAPPIST-1 b Sec Eclipse Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Comments: Please only schedule this observation for one of the following secondary eclipses of TRAPPIST-1 b, as approved by the TTRB on 09/27/2022 (change request 88553). Other events with the same phase will be contaminated and should not be observed. These are the times for phase = 0.5, so applying the phase constraints should start the exposure between 3.0536 h and 2.0536 h before one of these times with a duration of 4.358 hours:

BJD_TDB		UT
2459878.1728195	->	2022-10-25 16:08:51.604787
2459879.683461	->	2022-10-27 04:24:11.030418
2459884.216391	->	2022-10-31 17:11:36.182397
2459891.770471	->	2022-11-08 06:29:28.694409
2459896.3034405	->	2022-11-12 19:16:57.259204
2459897.8141695	->	2022-11-14 07:32:24.244801
2459902.346808	->	2022-11-18 20:19:24.211200
2459903.8574855	->	2022-11-20 08:34:46.747214
2459908.390481	->	2022-11-24 21:22:17.558385
2459909.9012125	->	2022-11-26 09:37:44.759995
2459911.412042	->	2022-11-27 21:53:20.428788
2459914.4338025	->	2022-11-30 22:24:40.535991
2459915.944503	->	2022-12-02 10:40:05.059200
2459917.4552285	->	2022-12-03 22:55:31.742405
2459920.477516	->	2022-12-06 23:27:37.382413
2459921.9882505	->	2022-12-08 11:43:04.843204
2459923.499046	->	2022-12-09 23:58:37.574416

All MIRI Imager observations are done in time-series mode with precision target acquisition and no dithers
PA constraints are set for the object to be near the center and to get the nearby 2MASS K = 13.5 star in the field

Diagnostics

(TRAPPIST-1 b Sec Eclipse (Obs 7)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	TRAPPIST-1B	RA: 23 06 30.3341 (346.6263921d)	Proper Motion RA: 930.9 mas/yr	
		Dec: -05 02 36.46 (-5.04346d)	Proper Motion Dec: -479.4 mas/yr	
		Equinox: J2000	Parallax: 0.0804"	
			Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database (Gaia 2015.5 Epoch)
TRAPPIST-1 star and b planet
Category=Star
Description=[Exoplanet Systems, Exoplanets, M dwarfs, M stars]
Extended=NO

Template

Subarray
FULL

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F1500W	FASTR1	14	377	1	None	1	377	15690.076	85318.4

Special Requirements

Phase 0.41578 to 0.44339 with period 1.5108794 Days and zero-phase 2459785.2533425996 HJD
Aperture PA Range 74.449705 to 154.449705 Degrees (V3 69.61425603 to 149.61425603)
Aperture PA Range 254.449705 to 334.449705 Degrees (V3 249.61425603 to 329.61425603)
Offset 0.5 arcsec, 0.5 arcsec
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 8: TRAPPIST-1 b Sec Eclipse Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Comments: Please only schedule this observation for one of the following secondary eclipses of TRAPPIST-1 b, as approved by the TTRB on 09/27/2022 (change request 88553). Other events with the same phase will be contaminated and should not be observed. These are the times for phase = 0.5, so applying the phase constraints should start the exposure between 3.0536 h and 2.0536 h before one of these times with a duration of 4.358 hours:

BJD_TDB		*UT*
2459878.1728195	*->*	*2022-10-25 16:08:51.604787*
2459879.683461	*->*	*2022-10-27 04:24:11.030418*
2459884.216391	*->*	*2022-10-31 17:11:36.182397*
2459891.770471	*->*	*2022-11-08 06:29:28.694409*
2459896.3034405	*->*	*2022-11-12 19:16:57.259204*
2459897.8141695	*->*	*2022-11-14 07:32:24.244801*
2459902.346808	*->*	*2022-11-18 20:19:24.211200*
2459903.8574855	*->*	*2022-11-20 08:34:46.747214*
2459908.390481	*->*	*2022-11-24 21:22:17.558385*
2459909.9012125	*->*	*2022-11-26 09:37:44.759995*
2459911.412042	*->*	*2022-11-27 21:53:20.428788*
2459914.4338025	*->*	*2022-11-30 22:24:40.535991*
2459915.944503	*->*	*2022-12-02 10:40:05.059200*
2459917.4552285	*->*	*2022-12-03 22:55:31.742405*
2459920.477516	*->*	*2022-12-06 23:27:37.382413*
2459921.9882505	*->*	*2022-12-08 11:43:04.843204*
2459923.499046	*->*	*2022-12-09 23:58:37.574416*

All MIRI Imager observations are done in time-series mode with precision target acquisition and no dithers
PA constraints are set for the object to be near the center and to get the nearby 2MASS K = 13.5 star in the field
Offsets are set to minimal values to serve as a placeholder in I decide to move the star elsewhere in the array, pending on-orbit performance

Diagnostics

(TRAPPIST-1 b Sec Eclipse (Obs 8)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	TRAPPIST-1B	RA: 23 06 30.3341 (346.6263921d)	Proper Motion RA: 930.9 mas/yr	
		Dec: -05 02 36.46 (-5.04346d)	Proper Motion Dec: -479.4 mas/yr	
		Equinox: J2000	Parallax: 0.0804"	
			Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database (Gaia 2015.5 Epoch)
TRAPPIST-1 star and b planet
Category=Star
Description=[Exoplanet Systems, Exoplanets, M dwarfs, M stars]
Extended=NO

Template

Subarray
FULL

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F1500W	FASTR1	14	377	1	None	1	377	15690.076	85318.4

Special Requirements

Phase 0.41578 to 0.44339 with period 1.5108794 Days and zero-phase 2459785.2533425996 HJD
Aperture PA Range 74.449705 to 154.449705 Degrees (V3 69.61425603 to 149.61425603)
Aperture PA Range 254.449705 to 334.449705 Degrees (V3 249.61425603 to 329.61425603)
Offset 0.5 arcsec, 0.5 arcsec
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 9: TRAPPIST-1 b Sec Eclipse Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Comments: Please only schedule this observation for one of the following secondary eclipses of TRAPPIST-1 b, as approved by the TTRB on 09/27/2022 (change request 88553). Other events with the same phase will be contaminated and should not be observed. These are the times for phase = 0.5, so applying the phase constraints should start the exposure between 3.0536 h and 2.0536 h before one of these times with a duration of 4.358 hours:

BJD_TDB		*UT*
2459878.1728195	*->*	*2022-10-25 16:08:51.604787*
2459879.683461	*->*	*2022-10-27 04:24:11.030418*
2459884.216391	*->*	*2022-10-31 17:11:36.182397*
2459891.770471	*->*	*2022-11-08 06:29:28.694409*
2459896.3034405	*->*	*2022-11-12 19:16:57.259204*
2459897.8141695	*->*	*2022-11-14 07:32:24.244801*
2459902.346808	*->*	*2022-11-18 20:19:24.211200*
2459903.8574855	*->*	*2022-11-20 08:34:46.747214*
2459908.390481	*->*	*2022-11-24 21:22:17.558385*
2459909.9012125	*->*	*2022-11-26 09:37:44.759995*
2459911.412042	*->*	*2022-11-27 21:53:20.428788*
2459914.4338025	*->*	*2022-11-30 22:24:40.535991*
2459915.944503	*->*	*2022-12-02 10:40:05.059200*
2459917.4552285	*->*	*2022-12-03 22:55:31.742405*
2459920.477516	*->*	*2022-12-06 23:27:37.382413*
2459921.9882505	*->*	*2022-12-08 11:43:04.843204*
2459923.499046	*->*	*2022-12-09 23:58:37.574416*

All MIRI Imager observations are done in time-series mode with precision target acquisition and no dithers
PA constraints are set for the object to be near the center and to get the nearby 2MASS K = 13.5 star in the field
Offsets are set to minimal values to serve as a placeholder in I decide to move the star elsewhere in the array, pending on-orbit performance

Diagnostics

(TRAPPIST-1 b Sec Eclipse (Obs 9)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	TRAPPIST-1B	RA: 23 06 30.3341 (346.6263921d)	Proper Motion RA: 930.9 mas/yr	
		Dec: -05 02 36.46 (-5.04346d)	Proper Motion Dec: -479.4 mas/yr	
		Equinox: J2000	Parallax: 0.0804"	
			Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database (Gaia 2015.5 Epoch)
TRAPPIST-1 star and b planet
Category=Star
Description=[Exoplanet Systems, Exoplanets, M dwarfs, M stars]
Extended=NO

Template

Subarray
FULL

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F1500W	FASTR1	14	377	1	None	1	377	15690.076	85318.4

Special Requirements

Phase 0.41578 to 0.44339 with period 1.5108794 Days and zero-phase 2459785.2533425996 HJD
Aperture PA Range 74.449705 to 154.449705 Degrees (V3 69.61425603 to 149.61425603)
Aperture PA Range 254.449705 to 334.449705 Degrees (V3 249.61425603 to 329.61425603)
Offset 0.5 arcsec, 0.5 arcsec
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 10: TRAPPIST-1 b Sec Eclipse Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Comments: Please only schedule this observation for one of the following secondary eclipses of TRAPPIST-1 b, as approved by the TTRB on 09/27/2022 (change request 88553). Other events with the same phase will be contaminated and should not be observed. These are the times for phase = 0.5, so applying the phase constraints should start the exposure between 3.0536 h and 2.0536 h before one of these times with a duration of 4.358 hours:

BJD_TDB		*UT*
2459878.1728195	*->*	*2022-10-25 16:08:51.604787*
2459879.683461	*->*	*2022-10-27 04:24:11.030418*
2459884.216391	*->*	*2022-10-31 17:11:36.182397*
2459891.770471	*->*	*2022-11-08 06:29:28.694409*
2459896.3034405	*->*	*2022-11-12 19:16:57.259204*
2459897.8141695	*->*	*2022-11-14 07:32:24.244801*
2459902.346808	*->*	*2022-11-18 20:19:24.211200*
2459903.8574855	*->*	*2022-11-20 08:34:46.747214*
2459908.390481	*->*	*2022-11-24 21:22:17.558385*
2459909.9012125	*->*	*2022-11-26 09:37:44.759995*
2459911.412042	*->*	*2022-11-27 21:53:20.428788*
2459914.4338025	*->*	*2022-11-30 22:24:40.535991*
2459915.944503	*->*	*2022-12-02 10:40:05.059200*
2459917.4552285	*->*	*2022-12-03 22:55:31.742405*
2459920.477516	*->*	*2022-12-06 23:27:37.382413*
2459921.9882505	*->*	*2022-12-08 11:43:04.843204*
2459923.499046	*->*	*2022-12-09 23:58:37.574416*

All MIRI Imager observations are done in time-series mode with precision target acquisition and no dithers
PA constraints are set for the object to be near the center and to get the nearby 2MASS K = 13.5 star in the field
Offsets are set to minimal values to serve as a placeholder in I decide to move the star elsewhere in the array, pending on-orbit performance

Diagnostics

(TRAPPIST-1 b Sec Eclipse (Obs 10)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	TRAPPIST-1B	RA: 23 06 30.3341 (346.6263921d)	Proper Motion RA: 930.9 mas/yr	
		Dec: -05 02 36.46 (-5.04346d)	Proper Motion Dec: -479.4 mas/yr	
		Equinox: J2000	Parallax: 0.0804"	
			Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database (Gaia 2015.5 Epoch)
TRAPPIST-1 star and b planet
Category=Star
Description=[Exoplanet Systems, Exoplanets, M dwarfs, M stars]
Extended=NO

Template

Subarray
FULL

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F1500W	FASTR1	14	377	1	None	1	377	15690.076	85318.4

Special Requirements

Phase 0.41578 to 0.44339 with period 1.5108794 Days and zero-phase 2459785.2533425996 HJD
Aperture PA Range 74.449705 to 154.449705 Degrees (V3 69.61425603 to 149.61425603)
Aperture PA Range 254.449705 to 334.449705 Degrees (V3 249.61425603 to 329.61425603)
Offset 0.5 arcsec, 0.5 arcsec
Time Series Observation
No Parallel Attachments
No Parallel Attachments

Observation

Proposal 1177, Observation 11: TRAPPIST-1 b Sec Eclipse Mon May 01 18:26:02 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Comments: Please only schedule this observation for one of the following secondary eclipses of TRAPPIST-1 b, as approved by the TTRB on 09/27/2022 (change request 88553). Other events with the same phase will be contaminated and should not be observed. These are the times for phase = 0.5, so applying the phase constraints should start the exposure between 3.0536 h and 2.0536 h before one of these times with a duration of 4.358 hours:

BJD_TDB		*UT*
2459878.1728195	*->*	*2022-10-25 16:08:51.604787*
2459879.683461	*->*	*2022-10-27 04:24:11.030418*
2459884.216391	*->*	*2022-10-31 17:11:36.182397*
2459891.770471	*->*	*2022-11-08 06:29:28.694409*
2459896.3034405	*->*	*2022-11-12 19:16:57.259204*
2459897.8141695	*->*	*2022-11-14 07:32:24.244801*
2459902.346808	*->*	*2022-11-18 20:19:24.211200*
2459903.8574855	*->*	*2022-11-20 08:34:46.747214*
2459908.390481	*->*	*2022-11-24 21:22:17.558385*
2459909.9012125	*->*	*2022-11-26 09:37:44.759995*
2459911.412042	*->*	*2022-11-27 21:53:20.428788*
2459914.4338025	*->*	*2022-11-30 22:24:40.535991*
2459915.944503	*->*	*2022-12-02 10:40:05.059200*
2459917.4552285	*->*	*2022-12-03 22:55:31.742405*
2459920.477516	*->*	*2022-12-06 23:27:37.382413*
2459921.9882505	*->*	*2022-12-08 11:43:04.843204*
2459923.499046	*->*	*2022-12-09 23:58:37.574416*

All MIRI Imager observations are done in time-series mode with precision target acquisition and no dithers
PA constraints are set for the object to be near the center and to get the nearby 2MASS K = 13.5 star in the field
Offsets are set to minimal values to serve as a placeholder in I decide to move the star elsewhere in the array, pending on-orbit performance

Diagnostics

(TRAPPIST-1 b Sec Eclipse (Obs 11)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	TRAPPIST-1B	RA: 23 06 30.3341 (346.6263921d)	Proper Motion RA: 930.9 mas/yr	
		Dec: -05 02 36.46 (-5.04346d)	Proper Motion Dec: -479.4 mas/yr	
		Equinox: J2000	Parallax: 0.0804"	
			Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database (Gaia 2015.5 Epoch)
TRAPPIST-1 star and b planet
Category=Star
Description=[Exoplanet Systems, Exoplanets, M dwarfs, M stars]
Extended=NO

Template

Subarray
FULL

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F1500W	FASTR1	14	377	1	None	1	377	15690.076	85318.4

Special Requirements

Phase 0.41578 to 0.44339 with period 1.5108794 Days and zero-phase 2459785.2533425996 HJD
Aperture PA Range 74.449705 to 154.449705 Degrees (V3 69.61425603 to 149.61425603)
Aperture PA Range 254.449705 to 334.449705 Degrees (V3 249.61425603 to 329.61425603)
Offset 0.5 arcsec, 0.5 arcsec
Time Series Observation
No Parallel Attachments
No Parallel Attachments