



# 1345 - The Cosmic Evolution Early Release Science (CEERS) Survey

Cycle: 1, Proposal Category: ERS

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## OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
MIRI+NIRCam Parallels				
	1	MIRI1	MIRI Imaging	(1) MIRI-EGS1

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<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	2	MIRI2	MIRI Imaging	(2) MIRI-EGS2
	3	MIRI3	MIRI Imaging	(3) MIRI-EGS3
	4	MIRI4	MIRI Imaging	(4) MIRI-EGS4
NIRCam Grism + F115W				
	5	NIRCam3 Grism	NIRCam Wide Field Slitless Spectroscopy	(5) NIRCAM-GRISM-3
	6	NIRCam4 Grism	NIRCam Wide Field Slitless Spectroscopy	(6) NIRCAM-GRISM-4
	7	NIRCam5 Grism	NIRCam Wide Field Slitless Spectroscopy	(7) NIRCAM-GRISM-5
	8	NIRCam6 Grism	NIRCam Wide Field Slitless Spectroscopy	(8) NIRCAM-GRISM-6
NIRSpec+NIRCam Parallels				
	9	Merged	NIRSpec MultiObject Spectroscopy	(9) TARGET-OBSERVATION-9

## ABSTRACT

We propose the Cosmic Evolution Early Release Science (CEERS) Survey (NOI #135), which covers 100 sq. arcmin with JWST imaging and spectroscopy, and is designed to achieve the DD-ERS goals.

CEERS will inform the selection of a wide variety of spectroscopic targets for Cycle 2 with a practical choice of imaging area, depth, and wavelength coverage, targeting a field that is supported by a rich set of HST/CANDELS multi-wavelength data.

CEERS will demonstrate, test, and validate efficient extragalactic surveys with coordinated, overlapping parallel observations with the JWST instrument suite, including NIRCam and MIRI imaging, NIRSpec R~100 and R~1000 spectroscopy, and NIRCam slitless grism (R~1500) spectroscopy. These tests enable Cycle 2 observations, including validating JWST parallel observing modes, dither and exposure-time strategies, and spectroscopic observing modes including slit-loss corrections.

CEERS enables immediate community science into both extragalactic JWST science drivers “First Light and Reionization” and “The Assembly of Galaxies”, including: 1) The discovery of 20-80 galaxies at  $z\sim 9-13$ , constraining their abundance and physical nature; 2) Deep spectra of  $>400$  galaxies at  $z>3$ , including 40 known candidates at  $6<z<9$ , enabling redshifts and constraints on physical conditions of star-formation and black hole growth via line diagnostics; 3) Quantifying the first bulge and disk structures at  $z>3$ ; and 4) Characterizing galaxy mid-IR emission to study dust-obscured star-formation and supermassive black hole growth at  $z\sim 1-3$ .

The CEERS collaboration is diverse on many axes with demonstrated expertise in rapid delivery of high-level science products.

## OBSERVING DESCRIPTION

In this document, we describe the details behind the specific observations in each mode. We refer the reader to the Technical Description of the PDF attachment for the motivation behind our specific observing choices, including the targeted field, the number of instruments, number of pointings, and depths. CEERS includes three observation types over four instrumental modes, resulting in a mosaic of 10 NIRCcam imaging pointings covering the majority ( $\sim 100 \text{ arcmin}^2$ ) of the Extended Groth Strip HST legacy field. Six of these pointings are in parallel to prime NIRSpec MSA spectroscopy, and four are in parallel to prime MIRI imaging. Four of these pointings are also covered by NIRCcam grism spectroscopy.

Placement of observations: We place our NIRCcam mosaic along the bulk of the HST/WFC3 region in the EGS field (Fig 2). In order to place the NIRSpec parallels on the HST-covered region (required for MSA pre-selection for an ERS program), we require a V3PA of  $130 (+/- 10)$  degrees for the June 2019 observing window (a 180 flip in December can also work if the ERS window moves by  $\sim 6$  months due to a launch delay). The flexibility in PA results in observing windows of  $\sim 30$  days. There is some leeway to slide the whole mosaic up and down along the long-axis of the EGS, and we selected the final positions to maximize the number of high priority sources which fall in both the NIRSpec and MIRI pointings. As discussed in the Alternative Targets section, we can obtain qualitatively similar layouts in our backup COSMOS and UDS fields. We have designed versions of Figure 2 for these fields to verify this, though we note that EGS remains the optimal choice because in COSMOS and UDS the allowable V3PAs result in  $\sim 10\%$  of the NIRCcam imaging falling off of the HST-covered regions (though this does not harm the primary NIRCcam science of  $z > 9$  galaxies).

Targets: Within APT, Targets 1-4 are the four MIRI+NIRCcam coordinated parallel pointings. Targets 5-8 are the four NIRCcam grism pointings. Target 9 is the full six NIRSpec+NIRCcam coordinated parallel pointings. This target was made by the MSA planner. In the planner, we merged all NIRSpec plans to a single plan to minimize overhead (based on advice from Tracy Beck), and created a single observation.

NIRCcam Observations: We observe with six NIRCcam filters in all 10 NIRCcam pointings, pairing these short and long-wavelength filters: F115W+F356W, F150W+F277W and F200W+F444W. The NIRCcam GTO team recommends exposures of between 4-8 groups to allow efficient cosmic ray rejection. We reach our desired sensitivity in 2867 sec of total integration time (3 exposures of 5 groups each in DEEP8 readout mode). As F115W is our dropout band, we require additional imaging to allow Ly-alpha break selection to the limit of the F150W image, thus we add a second 2867 sec set of integrations in this filter. In six of our fields (NIRCcam fields 1-4, 9 and 10 in Figure 2), we pair this with F410M. In the remaining four fields, we obtain this second set of F115W integrations alongside our NIRCcam grism slitless spectroscopic observations; the grism observes in the long-wavelength channel, and simultaneous short-wavelength imaging is permitted.

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There are a few exceptions to our nominal 5-group exposures. The first is the F115W imaging in NIRCcam fields 5-8; as these are alongside the grism, we must follow a permitted grism dither pattern. APT v25.2.3 currently only allows a 4 and 9-point dither pattern, which drives us to 2 groups per integration (total integration time of 2490 sec, close to our desired 2867 sec; changing to 3 groups increases the exposure time to 4208 sec, well beyond our needs). Our conversations with the NIRCcam team imply that a smaller number of dithers will likely soon be permitted. Should a 3-pt dither pattern become available at a later time, we will switch to that and increase the number of groups to 3 per exposure (for a total integration time of 3156 sec), further reducing our susceptibility to cosmic rays (we note that even with 2 groups per exposure, there will be seven total exposures in F115W in these fields - four alongside the grism, and three alongside our F356W imaging, so we do not expect a significant impact due to cosmic rays).

The second exception is for the NIRCcam pointings in parallel to MIRI pointings 7 and 9. In these MIRI pointings, we desire to fully sample the IR SED, which drives towards  $>3$  filters. As MIRI filter changes are not permitted during NIRCcam exposures, we split each of NIRCcam exposures from 1 integration of 5 groups to 3 integrations of 3 groups, achieving a limiting magnitude  $<0.1$  mag different from the rest of the mosaic.

### NIRSpec Observations:

The nominal NIRSpec field centers are set by the parallel locations relative to our NIRCcam mosaic layout; however, we have tweaked the location of each NIRCcam tile/NIRSpec MSA pointing by up to  $\sim 5''$  to maximize the number of targets in NIRSpec MSA slits. We have identified high-priority target lists supplied by the full CEERS team members covering all galaxy types and redshifts (supplemented by the CANDELS photo-z and stellar mass catalogs), and provide large number of backup targets needed to optimize the final NIRSpec MSA planning. The number of NIRSpec grating configurations is limited by the need to do NIRSpec grating/filter moves at the same time as the NIRCcam filter moves, requiring also three observations. In each observation, we observe in the G140M/F100LP, G235M/F170LP and G395M/F290LP, spanning 1-5 $\mu$ m, allowing the full range of NIRSpec science to be enabled. The NIRSpec exposure times are set to be comparable to those for each of the NIRCcam observations. We choose three exposures of 13 groups each in JDox-recommended NRSIRS2 readout mode, giving a total exposure time of 2888 sec. The 5-sigma limiting emission line fluxes expected in these depths are  $1-2 \times 10^{-18}$  erg/s/cm<sup>2</sup> across all of 1-5 $\mu$ m for a centered point source, or conservatively a factor of two higher for additional slit losses due to imperfect centering and resolved sources. In NIRSpec fields 1-4, we also observe with the PRISM/CLEAR setup in parallel with the second F115W integration. Again using three exposures of 23 groups each in the NRS readout mode, giving a total exposure time of 2997 sec, we expect a continuum 5-sigma sensitivity of 26.5 AB mag.

We perform a second observation in NIRSpec field 4, offsetting by  $0.07''$  ( $1/3$  of a slit width) in the dispersion direction, to allow for our analysis on the effect of object slit-centering on slit-losses. In this observation, we again observe with three gratings for 2997 sec each. For all three gratings, this analysis can be done for continuum sources using the NIRCcam imaging as a measure of the total flux, while this will be possible for emission lines as well in the reddest grating, which overlaps with the NIRCcam grism 3-4 $\mu$ m observations.

Potential NIRSpec targets were compiled and prioritized by the CEERS collaboration, emphasizing redshift ranges where 1–5 micron spectroscopy will detect key emission lines or continuum features to measure redshifts and spectral diagnostics. A larger sample of potential filler targets was also assembled, again prioritizing redshifts (mainly photometric)  $z > 0.5$  where H-alpha and other strong lines are observable, and giving brighter filler objects higher weight. The MSA Planning Tool (MPT) was used to search a 5''x5'' grid around each nominal NIRSpec pointing center in order to maximize combined weights for observable primary targets, using a grid step finer than the MSA shutter size. We use standard 3-shutter MSA “slits” and 3-point nodding, and adopt “midpoint” shutter centering constraints as a compromise between achievable target multiplex and potential slit losses for de-centered targets. The procedure was repeated for both NIRSpec medium resolution ( $R \sim 1000$ ) and prism ( $R \sim 100$ ) modes; the latter achieves higher multiplex due to the shorter dispersed spectra. For medium resolution, this optimization yielded 244 primary + 86 filler = 330 total targets observed over 6 NIRSpec MSA fields. For the  $R \sim 100$  prism, which is used for only 4 NIRSpec fields, we achieve 251 primary + 48 filler = 299 total targets. Our full MSA target list was ingested to APT prior to our final submission.

#### NIRCam Grism Observations:

We observe four of our NIRCam pointings (5-8) which most overlap the NIRSpec pointings with the NIRCam grism, to both allow the community to compare NIRCam grism versus NIRSpec for future proposals, and to calibrate the NIRSpec slit losses. For these four fields, these long-wavelength grism exposures will be taken alongside the second set of short-wavelength F115W exposures (coordinated parallels with the NIRCam grism are not allowed in Cycle 1, so NIRSpec or MIRI will not be used during these exposures). As we wish to demonstrate the grism as a useful mode, we elect to observe in a single filter (F356W), allowing additional filters to be added by the community. As discussed above, we (presently) use the 4-point dither pattern, with four exposures of 2 groups each in DEEP8 readout mode for both the Row and Column grisms. These each have total integration times of 1245 sec, so sources detected in both observations will have a total time of 2490 sec. We take shallow direct images both in and out of the field, to allow alignment with our deeper F356W observations described above, and identify the sources for all dispersed spectra.

#### MIRI Observations:

We will observe with 4 MIRI pointings as shown in Figure 2. In all cases we use combinations of groups and integrations that maximize the SNR for point sources without saturation warnings (using the JWST ETC). All MIRI observations are in FAST readout mode, which give ~10% higher S/N based on ETC calculations. Two of these pointings (MIRI 8 and 10) overlap with the NIRCam imaging, where we will observe deeply in F560W and F770W, prioritizing the  $z > 4$  galaxy science. For these, we use sets of 3 exposures each with 120 groups x 3 integrations, for an exposure time of 2997 s. We perform one such set for F560W. For F770W, we use two sets in F770W for MIRI-8, for an exposure time of 5994 s. For MIRI-10, we include an additional set of 2997 s (3x2997 s total) in F770W (in parallel with the 2nd set of NIRCam F115W integrations). Pointings MIRI-7 and

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9 fall off the NIRCcam map, but overlap with the CANDELS HST imaging, and we use the longer wavelength filters, focusing on the  $z \sim 1-2$  science. In both pointings, we observe in F1000W, F1280W, and F1500W using 3 dithers of 100 groups x 2 integrations for 1665 s/band. For F1800W we use 3 dithers of 40 groups x 5 integrations for 1665 s, and for F2100W we use 3 dithers of 36 groups x 10 integrations for an exposure time of 2997 s. In MIRI pointing 9, in parallel with the additional NIRCcam F115W integration, we add an additional 1665 s in F770W with 3 dithers of 100 groups x 2 integrations and in F2100W with 3 dithers of 20 groups x 10 exposures (bringing the total to 4662 s in F2100W). For all MIRI pointings we use the 3-point dither pattern that allows reconstructing the PSF that is under-sampled in some NIRCcam filters and allows efficient self-calibration in MIRI.

### NIRSpec-NIRCcam dithering:

Our primary dithering considerations are optimal sky subtraction in the NIRSpec exposures, and sufficient sub-pixel sampling in the under sampled F115W and F277W NIRCcam observations. After studying all possibilities and consulting with the NIRCcam GTO team, we chose to perform three exposures per NIRSpec observation, nodding across the 3-shutter NIRSpec slitlet. As the orientation of NIRSpec is rotated with respect to NIRCcam, these three dithers will move objects diagonally across the NIRCcam detector, subsampling pixels at three unique positions. This will improve PSF reconstruction and size/morphology measurements, especially in the under-sampled F115W and F277W images.

This dithering scheme does not cover the NIRCcam module gap. Covering this gap would require a telescope move large enough to necessitate re-acquiring a guide star, increasing the overhead. We also elect to not cover the 5" chip gaps in the NIRCcam short-wavelength imaging. This would not increase the overhead significantly, but it would require a second set of three exposures. Doubling the total integration time is unacceptable for an ERS-sized program, while doubling the number of exposures for a fixed exposure time significantly reduces the NIRSpec signal-to-noise. The gain in area by covering these gaps is a small fraction of the fiducial area, and thus does not affect our science goals, although results in a loss of aesthetics.

### Data Rate:

We have critically examined the data volume rate for our planned observations, and have verified that APT does not give any errors or warnings. If STScI finds that the data rate is too high for our most data intensive MIRI observations, we can move most MIRI observations to the SLOW readout mode at a minor (<10%) hit to the signal-to-noise of those observations.

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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	MIRI-EGS1	RA: 14 20 6.5658 (215.0273575d) Dec: +52 56 40.47 (52.94457d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO				
	(2)	MIRI-EGS2	RA: 14 19 49.7810 (214.9574208d) Dec: +52 56 54.02 (52.94834d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO				
	(3)	MIRI-EGS3	RA: 14 19 44.3755 (214.9348979d) Dec: +52 52 53.28 (52.88147d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO				
	(4)	MIRI-EGS4	RA: 14 19 26.9831 (214.8624296d) Dec: +52 53 10.42 (52.88623d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO				
	(5)	NIRCAM-GRISM-3	RA: 14 20 26.6772 (215.1111550d) Dec: +52 57 19.02 (52.95528d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]				
	(6)	NIRCAM-GRISM-4	RA: 14 20 9.3664 (215.0390267d) Dec: +52 57 36.41 (52.96011d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]				
	(7)	NIRCAM-GRISM-5	RA: 14 20 4.4713 (215.0186304d) Dec: +52 53 32.86 (52.89246d) Equinox: J2000		
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]				

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(8)	NIRCAM-GRISM-6	RA: 14 19 47.1809 (214.9465871d) Dec: +52 53 48.80 (52.89689d) Equinox: J2000
<i>Comments:</i> <i>Category=Galaxy</i> <i>Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]</i>		
(9)	TARGET-OBSERVATION-9	RA: 14 19 49.2163 (214.9550679d) Dec: +52 54 13.67 (52.90380d) Equinox: J2000
<i>Comments: This target was generated automatically for MSA Observation 9</i> <i>Category=Galaxy</i> <i>Description=[Active galaxies, Emission line galaxies, High-redshift galaxies]</i>		
(10)	EGSZ9	RA: 14 19 52.2144 (214.9675600d) Dec: +52 55 58.66 (52.93296d) Equinox: J2000
<i>Comments:</i> <i>Category=Galaxy</i> <i>Description=[High-redshift galaxies]</i>		



# Proposal 1345 - Observation 1 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 1: MIRI1											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: MIRI Imaging											
	Coordinated Parallel Template(s): NIRCam Imaging											
Diagnostics	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(1)	MIRI-EGS1	RA: 14 20 6.5658 (215.0273575d) Dec: +52 56 40.47 (52.94457d) Equinox: J2000									
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO											
Template	MIRI Imaging						NIRCam Imaging					
	Subarray: FULL						Module: ALL Subarray: FULL					
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size		
	1	3-POINT-MIRI-F770W-WITH-NIRCam								DEFAULT		
	2	3-POINT-MIRI-F1000W-WITH-NIRCam								DEFAULT		
	3	3-POINT-MIRI-F1280W-WITH-NIRCam								DEFAULT		
	4	3-POINT-MIRI-F1500W-WITH-NIRCam								DEFAULT		
	5	3-POINT-MIRI-F1800W-WITH-NIRCam								DEFAULT		
	6	3-POINT-MIRI-F2100W-WITH-NIRCam								DEFAULT		
Spectral Elements	MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	F560W	FAST	360	1	1	Dither 1	3	3	2997.043		
	2	F770W	FAST	360	1	1	Dither 1	3	3	2997.043		
	3	F770W	FAST	360	1	1	Dither 1	3	3	2997.043		
	4	F770W	FAST	360	1	1	Dither 1	3	3	2997.043		

# Proposal 1345 - Observation 1 - The Cosmic Evolution Early Release Science (CEERS) Survey

Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	2	F115W	F356W	MEDIUM8	9	1	3	3	2834.507	
	3	F150W	F410M	MEDIUM8	9	1	3	3	2834.507	
	4	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
Special Requirements	Aperture PA Range 315.449705 to 315.449705 Degrees (V3 311.0 to 311.0) No Parallel									

# Proposal 1345 - Observation 2 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 2: MIRI2										Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning										
	Observing Template: MIRI Imaging										
	Coordinated Parallel Template(s): NIRCam Imaging										
Diagnostics	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.										
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous	
	(2)	MIRI-EGS2	RA: 14 19 49.7810 (214.9574208d)								
			Dec: +52 56 54.02 (52.94834d)								
			Equinox: J2000								
			Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO								
Template	MIRI Imaging						NIRCam Imaging				
	Subarray: FULL						Module: ALL				
							Subarray: FULL				
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
	1	3-POINT-MIRI-F770W-WITH-NIRCam								DEFAULT	
	2	3-POINT-MIRI-F1000W-WITH-NIRCam								DEFAULT	
	3	3-POINT-MIRI-F1280W-WITH-NIRCam								DEFAULT	
	4	3-POINT-MIRI-F1500W-WITH-NIRCam								DEFAULT	
	5	3-POINT-MIRI-F1800W-WITH-NIRCam								DEFAULT	
	6	3-POINT-MIRI-F2100W-WITH-NIRCam								DEFAULT	

# Proposal 1345 - Observation 2 - The Cosmic Evolution Early Release Science (CEERS) Survey

Spectral Elements	MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	F770W	FAST	100	2	1	Dither 1	3	6	1665.024	
	2	F1000W	FAST	100	2	1	Dither 2	3	6	1665.024	
	3	F2100W	FAST	36	10	1	Dither 6	3	30	2997.043	
	4	F1280W	FAST	100	2	1	Dither 3	3	6	1665.024	
	5	F1500W	FAST	100	2	1	Dither 4	3	6	1665.024	
	6	F1800W	FAST	40	5	1	Dither 5	3	15	1665.024	
	7	F2100W	FAST	20	10	1	Dither 6	3	30	1665.024	
Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID	
	1	F115W	F277W	MEDIUM8	5	1	3	3	1546.095		
	2	F115W	F277W	MEDIUM8	5	1	3	3	1546.095		
	3	F115W	F356W	MEDIUM8	9	1	3	3	2834.507		
	4	F150W	F410M	MEDIUM8	5	1	3	3	1546.095		
	5	F150W	F410M	MEDIUM8	5	1	3	3	1546.095		
	6	F200W	F444W	MEDIUM8	5	1	3	3	1546.095		
	7	F200W	F444W	MEDIUM8	5	1	3	3	1546.095		
Special Requirements	Aperture PA Range 315.449705 to 315.449705 Degrees (V3 311.0 to 311.0) No Parallel										

# Proposal 1345 - Observation 3 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 3: MIRI3											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: MIRI Imaging											
	Coordinated Parallel Template(s): NIRCam Imaging											
Diagnostics	(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(3)	MIRI-EGS3	RA: 14 19 44.3755 (214.9348979d) Dec: +52 52 53.28 (52.88147d) Equinox: J2000									
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies] Extended=NO											
Template	MIRI Imaging						NIRCam Imaging					
	Subarray: FULL						Module: ALL Subarray: FULL					
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size		
	1	3-POINT-MIRI-F770W-WITH-NIRCam								DEFAULT		
	2	3-POINT-MIRI-F1000W-WITH-NIRCam								DEFAULT		
	3	3-POINT-MIRI-F1280W-WITH-NIRCam								DEFAULT		
	4	3-POINT-MIRI-F1500W-WITH-NIRCam								DEFAULT		
	5	3-POINT-MIRI-F1800W-WITH-NIRCam								DEFAULT		
	6	3-POINT-MIRI-F2100W-WITH-NIRCam								DEFAULT		
Spectral Elements	MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	F560W	FAST	360	1	1	Dither 1	3	3	2997.043		
	2	F770W	FAST	360	1	1	Dither 1	3	3	2997.043		
	3	F770W	FAST	360	1	1	Dither 1	3	3	2997.043		

# Proposal 1345 - Observation 3 - The Cosmic Evolution Early Release Science (CEERS) Survey

Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	2	F150W	F356W	MEDIUM8	9	1	3	3	2834.507	
	3	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
Special Requirements	Aperture PA Range 315.449705 to 315.449705 Degrees (V3 311.0 to 311.0) No Parallel									

# Proposal 1345 - Observation 4 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 4: MIRI4											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: MIRI Imaging											
	Coordinated Parallel Template(s): NIRCam Imaging											
Diagnostics	(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(4)	MIRI-EGS4	RA: 14 19 26.9831 (214.8624296d) Dec: +52 53 10.42 (52.88623d) Equinox: J2000									
	<i>Comments:</i> <i>Category=Galaxy</i> <i>Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]</i> <i>Extended=NO</i>											
Template	MIRI Imaging						NIRCam Imaging					
	Subarray: FULL						Module: ALL Subarray: FULL					
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size		
	1	3-POINT-MIRI-F770W-WITH-NIRCam								DEFAULT		
	2	3-POINT-MIRI-F1000W-WITH-NIRCam								DEFAULT		
	3	3-POINT-MIRI-F1280W-WITH-NIRCam								DEFAULT		
	4	3-POINT-MIRI-F1500W-WITH-NIRCam								DEFAULT		
	5	3-POINT-MIRI-F1800W-WITH-NIRCam								DEFAULT		
	6	3-POINT-MIRI-F2100W-WITH-NIRCam								DEFAULT		
Spectral Elements	MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	F1000W	FAST	100	2	1	Dither 2	3	6	1665.024		
	2	F1280W	FAST	100	2	1	Dither 3	3	6	1665.024		
	3	F1500W	FAST	100	2	1	Dither 4	3	6	1665.024		
	4	F1800W	FAST	40	5	1	Dither 5	3	15	1665.024		
	5	F2100W	FAST	36	10	1	Dither 6	3	30	2997.043		

# Proposal 1345 - Observation 4 - The Cosmic Evolution Early Release Science (CEERS) Survey

Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F150W	F356W	MEDIUM8	5	1	3	3	1546.095	
	2	F150W	F356W	MEDIUM8	5	1	3	3	1546.095	
	3	F200W	F444W	MEDIUM8	5	1	3	3	1546.095	
	4	F200W	F444W	MEDIUM8	5	1	3	3	1546.095	
	5	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
Special Requirements	Aperture PA Range 315.449705 to 315.449705 Degrees (V3 311.0 to 311.0) No Parallel									



# Proposal 1345 - Observation 5 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 5: NIRCam3 Grism											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: NIRCam Wide Field Slitless Spectroscopy											
Diagnostics	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 5:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 5:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(5)	NIRCAM-GRISM-3	RA: 14 20 26.6772 (215.1111550d)									
			Dec: +52 57 19.02 (52.95528d)									
			Equinox: J2000									
Template	Comments:											
	Category=Galaxy											
	Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]											
Template	Module				Subarray				Grism (Long Wavelength)			
	ALL				FULL				BOTH			
Dithers	#	Primary Dither Type				Primary Dithers				Subpixel Positions		
	1	NONE								4-Point		
Direct Image	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers
	1	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMR	Direct Image	1
	2	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMC	Direct Image	1
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers
	1	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMR	Grism (Long Wavelength)	4
	2	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2
	3	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMC	Grism (Long Wavelength)	4
	4	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2

Proposal 1345 - Observation 5 - The Cosmic Evolution Early Release Science (CEERS) Survey

Special Requirements	Group Visits within 53.0 Days Aperture PA Range 311.0 to 311.0 Degrees (V3 311.0 to 311.0) Visits Same PA
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# Proposal 1345 - Observation 6 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 6: NIRCam4 Grism											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: NIRCam Wide Field Slitless Spectroscopy											
Diagnostics	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 6:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 6:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(6)	NIRCAM-GRISM-4	RA: 14 20 9.3664 (215.0390267d) Dec: +52 57 36.41 (52.96011d) Equinox: J2000									
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]											
Template	Module		Subarray					Grism (Long Wavelength)				
	ALL		FULL					BOTH				
Dithers	#	Primary Dither Type				Primary Dithers				Subpixel Positions		
	1	NONE								4-Point		
Direct Image	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers
	1	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMR	Direct Image	1
	2	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMC	Direct Image	1
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers
	1	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMR	Grism (Long Wavelength)	4
	2	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2
	3	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMC	Grism (Long Wavelength)	4
	4	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2

Proposal 1345 - Observation 6 - The Cosmic Evolution Early Release Science (CEERS) Survey

Special Requirements	Group Visits within 53.0 Days Aperture PA Range 311.0 to 311.0 Degrees (V3 311.0 to 311.0) Visits Same PA
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# Proposal 1345 - Observation 7 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 7: NIRCam5 Grism												Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning												
	Observing Template: NIRCam Wide Field Slitless Spectroscopy												
Diagnostics	(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
	(Visit 7:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
	(Visit 7:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(7)	NIRCAM-GRISM-5	RA: 14 20 4.4713 (215.0186304d) Dec: +52 53 32.86 (52.89246d) Equinox: J2000										
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]												
Template	Module				Subarray				Grism (Long Wavelength)				
	ALL				FULL				BOTH				
Dithers	#	Primary Dither Type				Primary Dithers				Subpixel Positions			
	1	NONE								4-Point			
Direct Image	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers	
	1	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMR	Direct Image	1	
	2	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMC	Direct Image	1	
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers	
	1	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMR	Grism (Long Wavelength)	4	
	2	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2	
	3	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMC	Grism (Long Wavelength)	4	
	4	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2	

Proposal 1345 - Observation 7 - The Cosmic Evolution Early Release Science (CEERS) Survey

Special Requirements	Group Visits within 53.0 Days Aperture PA Range 311.0 to 311.0 Degrees (V3 311.0 to 311.0) Visits Same PA
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# Proposal 1345 - Observation 8 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 8: NIRCam6 Grism											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: NIRCam Wide Field Slitless Spectroscopy											
Diagnostics	(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 8:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 8:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(8)	NIRCAM-GRISM-6	RA: 14 19 47.1809 (214.9465871d) Dec: +52 53 48.80 (52.89689d) Equinox: J2000									
	Comments: Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies, Lyman-break galaxies, Primordial galaxies]											
Template	Module		Subarray					Grism (Long Wavelength)				
	ALL		FULL					BOTH				
Dithers	#	Primary Dither Type				Primary Dithers				Subpixel Positions		
	1	NONE								4-Point		
Direct Image	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers
	1	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMR	Direct Image	1
	2	F115W	F356W	MEDIUM8	3	1	1	300.63		GRISMC	Direct Image	1
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	Grism (Long Wavelength)	Exposure Type	Total Dithers
	1	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMR	Grism (Long Wavelength)	4
	2	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2
	3	F115W	F356W	MEDIUM8	3	1	4	1202.518		GRISMC	Grism (Long Wavelength)	4
	4	F115W	F356W	MEDIUM8	3	1	2	601.259			Out of Field	2

Proposal 1345 - Observation 8 - The Cosmic Evolution Early Release Science (CEERS) Survey

Special Requirements	Group Visits within 53.0 Days Aperture PA Range 311.0 to 311.0 Degrees (V3 311.0 to 311.0) Visits Same PA
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# Proposal 1345 - Observation 9 - The Cosmic Evolution Early Release Science (CEERS) Survey

Observation	Proposal 1345, Observation 9: Merged											Fri Jun 21 22:02:09 GMT 2019
	Diagnostic Status: Warning											
	Observing Template: NIRSpec MultiObject Spectroscopy											
	Coordinated Parallel Template(s): NIRCам Imaging											
Diagnostics	(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 9:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 9:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 9:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 9:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
	(Visit 9:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(9)	TARGET-OBSERVATION-9	RA: 14 19 49.2163 (214.9550679d) Dec: +52 54 13.67 (52.90380d) Equinox: J2000									
	Comments: This target was generated automatically for MSA Observation 9 Category=Galaxy Description=[Active galaxies, Emission line galaxies, High-redshift galaxies]											
Acquisition	NIRSpec MultiObject Spectroscopy	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1		SAME	F140X	Auto Acq MSA Config	NRS	3	1	4	558.312		
	2		SAME	F140X	Auto Acq MSA Config	NRS	3	1	4	558.312		
	3		SAME	F140X	Auto Acq MSA Config	NRS	3	1	4	558.312		
	4		SAME	F140X	Auto Acq MSA Config	NRS	3	1	4	558.312		
	5		SAME	F140X	Auto Acq MSA Config	NRS	3	1	4	558.312		
	6		SAME	F140X	Auto Acq MSA Config	NRS	3	1	4	558.312		
Template	NIRSpec MultiObject Spectroscopy					NIRCам Imaging						
	TA Method: MSATA					Module: ALL						
	Obtain Confirmation Images: No					Subarray: FULL						
	Science Aperture: MSA Center											
Reference Stars												
Dithers	#	Dither Type										
	1	NONE										

# Proposal 1345 - Observation 9 - The Cosmic Evolution Early Release Science (CEERS) Survey

Spectral Elements	NIRSpec MultiObject Spectroscopy	Grating/Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	PRISM/CLEAR	Configuration: p1c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	2	G140M/F100LP	Configuration: p2c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	3	G235M/F170LP	Configuration: p2c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	4	G395M/F290LP	Configuration: p2c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	5	G140M/F100LP	Configuration: p2c1	NRSIRS2	13	1	NONE	3	3	2888.6	
	6	G235M/F170LP	Configuration: p2c1	NRSIRS2	13	1	NONE	3	3	2888.6	
	7	G395M/F290LP	Configuration: p2c1	NRSIRS2	13	1	NONE	3	3	2888.6	
	8	PRISM/CLEAR	Configuration: p3c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	9	G140M/F100LP	Configuration: p4c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	10	G235M/F170LP	Configuration: p4c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	11	G395M/F290LP	Configuration: p4c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	12	PRISM/CLEAR	Configuration: p5c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	13	G140M/F100LP	Configuration: p6c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	14	G235M/F170LP	Configuration: p6c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	15	G395M/F290LP	Configuration: p6c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	16	PRISM/CLEAR	Configuration: p7c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	17	G140M/F100LP	Configuration: p8c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	18	G235M/F170LP	Configuration: p8c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	19	G395M/F290LP	Configuration: p8c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	20	G140M/F100LP	Configuration: p9c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	21	G235M/F170LP	Configuration: p9c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	22	G395M/F290LP	Configuration: p9c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	23	G140M/F100LP	Configuration: p10c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	24	G235M/F170LP	Configuration: p10c0	NRSIRS2	13	1	NONE	3	3	2888.6	
	25	G395M/F290LP	Configuration: p10c0	NRSIRS2	13	1	NONE	3	3	2888.6	

# Proposal 1345 - Observation 9 - The Cosmic Evolution Early Release Science (CEERS) Survey

	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
Spectral Elements	1	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	2	F115W	F356W	MEDIUM8	9	1	3	3	2834.507	
	3	F150W	F410M	MEDIUM8	9	1	3	3	2834.507	
	4	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
	5	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	6	F150W	F356W	MEDIUM8	9	1	3	3	2834.507	
	7	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
	8	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	9	F115W	F356W	MEDIUM8	9	1	3	3	2834.507	
	10	F150W	F410M	MEDIUM8	9	1	3	3	2834.507	
	11	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
	12	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	13	F115W	F356W	MEDIUM8	9	1	3	3	2834.507	
	14	F150W	F410M	MEDIUM8	9	1	3	3	2834.507	
	15	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
	16	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	17	F115W	F356W	MEDIUM8	9	1	3	3	2834.507	
	18	F150W	F410M	MEDIUM8	9	1	3	3	2834.507	
	19	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
	20	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	21	F150W	F356W	MEDIUM8	9	1	3	3	2834.507	
	22	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
	23	F115W	F277W	MEDIUM8	9	1	3	3	2834.507	
	24	F150W	F356W	MEDIUM8	9	1	3	3	2834.507	
	25	F200W	F444W	MEDIUM8	9	1	3	3	2834.507	
Special Requirements	<p>Group Visits within 53.0 Days  Aperture PA Range 89.39234 to 89.59234 Degrees (V3 310.9 to 311.1)  Visits Same PA  No Parallel  On Hold Waiting for orient assignment to optimize MSA positions  MSA Planned Aperture PA 89.5 to 89.5 Degrees (V3 311.00766 to 311.00766)</p>									