



3290 - A complete spectroscopic census of the faintest galaxies and AGN at the dawn of galaxy formation

Cycle: 2, Proposal Category: GO

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Prof. Matthew James Hayes (PI) (ESA Member)	Stockholm University
Prof. Claudia Scarlata (CoI) (CoPI) (US Admin CoI)	University of Minnesota - Twin Cities
Yu-Heng Lin (CoI)	University of Minnesota - Twin Cities
Prof. Jonathan Charles Tan (CoI) (ESA Member)	Chalmers University of Technology
Prof. Richard S. Ellis (CoI) (ESA Member)	University College London
Prof. Pierluigi Monaco (CoI) (ESA Member)	Universita degli Studi di Trieste
Mr. Jasbir Singh (CoI) (ESA Member)	Universita degli Studi di Trieste
Mr. Vieri Cammelli (CoI) (ESA Member)	Universita degli Studi di Trieste
Dr. Danielle Berg (CoI)	University of Texas at Austin
Prof. Anne Jaskot (CoI)	Williams College
Dr. Alaina L. Henry (CoI)	Space Telescope Science Institute
Dr. Matilde Mingozzi (CoI)	Space Telescope Science Institute
Dr. Bethan Lesley James (CoI) (ESA Member)	Space Telescope Science Institute - ESA - JWST
Mr. Axel Runnholm (CoI) (ESA Member)	Stockholm University
Prof. Matthew A. Malkan (CoI)	University of California - Los Angeles
Dr. Vihang Mehta (CoI)	California Institute of Technology
Dr. Aayush Saxena (CoI) (ESA Member)	University of Oxford
Dr. Nicolas Laporte (CoI) (ESA Member)	University of Cambridge
Ms. Alice Young (CoI) (ESA Member)	Stockholm University
Prof. Zhi-Yun Li (CoI)	The University of Virginia

OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
Observation Folder				
	1		NIRSpec MultiObject Spectroscopy	(3) REFSTARs
	2		NIRSpec MultiObject Spectroscopy	(3) REFSTARs

ABSTRACT

As JWST has recently provided transformative new insights into the first galaxies and AGN, many uncertainties still surround these results. For example:

- (1.) The stellar and chemical conditions of the first galaxies need to be measured to provide accurate early-time constraints for galaxy evolution theory.
- (2.) The ionizing photon budget for reionization needs to be firmly anchored for large-volume simulations.
- (3.) The contribution of the first supermassive black holes (SMBH) needs to be determined, and accurate scenarios for their seeding and growth must be established.

Observationally, we must determine the metallicities and ionizing continua of the faintest galaxies at the highest redshifts, and simultaneously take an accurate census of rapidly accreting black holes at the same epoch.

We have devised an innovative method to use NIRSpec to perform a blind survey for the faintest emission line sources at redshifts 7-11. We will use this to take a very deep exposure of the Hubble Ultradeep Field, that will identify fainter sources than previously possible, and without the bias of photometric preselection. By measuring fluxes of ultraviolet emission lines, we will infer the chemical and thermodynamic properties in the interstellar media of the first low-mass galaxies, and unambiguously identify the AGN that reside unnoticed among the population. The sensitivity of these new observations will be sufficient to place unique constraints on the abundance of black hole seeds at early times, and provide foundational, realistic input for the next generation of cosmological simulations.

OBSERVING DESCRIPTION

We will observe the Hubble Ultra Deep field (HUDF, 03:32:38.9, -27:47:29.37) with NIRSpec/MOS using the G140M disperser and the F100LP filter. We will observe with the overwhelming majority of the MSA shutters set to OPEN to perform wide field slitless spectroscopy of the field, closing shutters where we detect sources in existing Hubble imaging in the F814W broadband filter.

JWST Proposal 3290 (Created: Tuesday, September 12, 2023 at 1:10:07 PM Eastern Standard Time) - Overview

This configuration in APT was achieved by:

- manually generating a dithering pattern (see below), implemented as shutter offsets, and calculating the appropriate offsets in shutter coordinates
- segmenting the HST/F814W image and identifying sources to mask
- tracing the sky coordinates of each mask-pixel to a (very large; ~700,000 entries) MSA catalog, and uploading to the APT
- defining the reference star acquisition from 73 possible compact galaxies, and fixing the field reference coordinates manually in APT for each pointing/configuration (see below)
- exporting the MSA Target Information as CSV files
- manually obtaining the coordinates of each closed shutter from the output CSV files, reading the Quadrant, Dispersion, and Spatial coordinate. This is then converted to an INVERTED 1,0 array in the format of MSA configuration (tested using exported files from the MPT)
- these matrices are then imported for each Configuration/Pointing in APT.

7-8% of the MSA shutters will remain closed for each observation.

Each configuration was verified using an inverse of the above configuration matrices – these are sufficiently small for the shutter list to be exported to Aladin and visualized. Overlay on the F814W image shows the procedure works well.

Target acquisition will be performed using MSATA. We can identify 8 compact galaxies over the field.

Spectroscopic observations will be performed using 19 the NRSIRS2 pattern with 19 groups per integration and 6 integrations. There are 8 Configurations/Pointings, which have been designed as follows:

- there are two main central pointings, offset in the dispersion direction by 20 arcsec in order to fill the gap between the detectors. This is about half the Splitting Distance
- there are four small dithers performed around each central pointing.
- the dither pattern is designed to (1) mitigate FAIL-CLOSED shutter issues, (2) average over the shutter edges, and (3) reconstruct the PSF as follows
- each step dithers by 1 and 1/4 shutter sizes in both dispersion and cross-dispersion. The 1 is to shift each exposure by a row/column and step over FAIL-CLOSED shutters. The 1/4 is to average over the shutter edges and average over the 'chicken wire' effect.
- rounding the above shifts to the nearest integer pixel, we also add 0.25 pix steps to each dither to provide 4 sub-pixel dithers for PSF reconstruction.

We will obtain short confirmation images once the field has been acquired and the MSA configuration has been performed.

** THIS VERSION OF THE APT includes only the finalized Observation 1. We will finish Observation 2 when this procedures has been approved and verified. **

Proposal 3290 - Targets - A complete spectroscopic census of the faintest galaxies and AGN at the dawn of galaxy formation

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	HUDFMSA	RA: 03 32 38.9133 (53.1621387d) Dec: -27 47 30.50 (-27.79181d) Equinox: J2000		
<i>Comments:</i> <i>Description=[]</i>					
(3)	REFSTARS	RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000			
<i>Comments:</i> <i>Description=[]</i>					

Proposal 3290 - Observation 1 - A complete spectroscopic census of the faintest galaxies and AGN at the dawn of galaxy formation

Tue Sep 12 18:10:07 GMT 2023

Observation	Proposal 3290, Observation 1 Diagnostic Status: Warning Observing Template: NIRSpec MultiObject Spectroscopy																																																											
	Diagnostics	(Observation 1) Warning (Form): Config exp1 (#1) has 35152 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp2 (#2) has 35232 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp3 (#3) has 35154 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp4 (#4) has 35176 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp5 (#5) has 34802 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp6 (#6) has 34976 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp7 (#7) has 35014 master background shutters affected by failed open or closed shutters. (Observation 1) Warning (Form): Config exp8 (#8) has 35012 master background shutters affected by failed open or closed shutters. (Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.																																																										
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>REFSTARS</td> <td>RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000</td> <td></td> <td></td> </tr> </tbody> </table> Comments: Description=[]										#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	(3)	REFSTARS	RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000																																									
		#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous																																																						
(3)		REFSTARS	RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000																																																									
Acquisition		<table border="1"> <thead> <tr> <th>#</th> <th>Reference Star Bin</th> <th>Target</th> <th>Filter</th> <th>MSA Configuration</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Filter: F140X; Readout: NRSRAPIDD6; 8 sources in 4 quads; [Reduced Accuracy]</td> <td>SAME</td> <td>F140X</td> <td>Auto Acq MSA Config</td> <td>NRSRAPIDD6</td> <td>3</td> <td>1</td> <td>4</td> <td>687.153</td> <td></td> </tr> </tbody> </table>										#	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	Filter: F140X; Readout: NRSRAPIDD6; 8 sources in 4 quads; [Reduced Accuracy]	SAME	F140X	Auto Acq MSA Config	NRSRAPIDD6	3	1	4	687.153																												
		#	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID																																																
1		Filter: F140X; Readout: NRSRAPIDD6; 8 sources in 4 quads; [Reduced Accuracy]	SAME	F140X	Auto Acq MSA Config	NRSRAPIDD6	3	1	4	687.153																																																		
Template		<table border="1"> <thead> <tr> <th>TA Method</th> <th>Obtain Confirmation Images</th> <th>Science Aperture</th> <th>Primary Candidate List</th> <th>Filler Candidate List</th> <th>Spectral Overlap Map</th> <th>Spectral Overlap Threshold</th> </tr> </thead> <tbody> <tr> <td>MSATA</td> <td>After Target ACQ and New MSA Config</td> <td>MSA Center</td> <td>REFSTARS (73 sources)</td> <td></td> <td>jwst-nirspec-g140m</td> <td>1.5</td> </tr> </tbody> </table>										TA Method	Obtain Confirmation Images	Science Aperture	Primary Candidate List	Filler Candidate List	Spectral Overlap Map	Spectral Overlap Threshold	MSATA	After Target ACQ and New MSA Config	MSA Center	REFSTARS (73 sources)		jwst-nirspec-g140m	1.5																																			
	TA Method	Obtain Confirmation Images	Science Aperture	Primary Candidate List	Filler Candidate List	Spectral Overlap Map	Spectral Overlap Threshold																																																					
MSATA	After Target ACQ and New MSA Config	MSA Center	REFSTARS (73 sources)		jwst-nirspec-g140m	1.5																																																						
Reference Stars	<table border="1"> <thead> <tr> <th>Visit</th> <th>ID</th> <th>RA</th> <th>Dec</th> <th>Magnitude</th> <th>Visit</th> <th>ID</th> <th>RA</th> <th>Dec</th> <th>Magnitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1871</td> <td>53.164340</td> <td>-27.810892</td> <td>22.614</td> <td>1</td> <td>2726</td> <td>53.148019</td> <td>-27.787757</td> <td>23.783</td> </tr> <tr> <td>1</td> <td>2385</td> <td>53.151654</td> <td>-27.796490</td> <td>22.330</td> <td>1</td> <td>2773</td> <td>53.197609</td> <td>-27.786469</td> <td>22.628</td> </tr> <tr> <td>1</td> <td>2497</td> <td>53.154643</td> <td>-27.793305</td> <td>22.634</td> <td>1</td> <td>2813</td> <td>53.144751</td> <td>-27.785503</td> <td>22.573</td> </tr> <tr> <td>1</td> <td>2527</td> <td>53.124771</td> <td>-27.793033</td> <td>23.306</td> <td>1</td> <td>3622</td> <td>53.164485</td> <td>-27.765923</td> <td>23.648</td> </tr> </tbody> </table>										Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude	1	1871	53.164340	-27.810892	22.614	1	2726	53.148019	-27.787757	23.783	1	2385	53.151654	-27.796490	22.330	1	2773	53.197609	-27.786469	22.628	1	2497	53.154643	-27.793305	22.634	1	2813	53.144751	-27.785503	22.573	1	2527	53.124771	-27.793033	23.306	1	3622	53.164485	-27.765923	23.648
	Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude																																																		
	1	1871	53.164340	-27.810892	22.614	1	2726	53.148019	-27.787757	23.783																																																		
	1	2385	53.151654	-27.796490	22.330	1	2773	53.197609	-27.786469	22.628																																																		
	1	2497	53.154643	-27.793305	22.634	1	2813	53.144751	-27.785503	22.573																																																		
1	2527	53.124771	-27.793033	23.306	1	3622	53.164485	-27.765923	23.648																																																			

Proposal 3290 - Observation 1 - A complete spectroscopic census of the faintest galaxies and AGN at the dawn of galaxy formation

Confirmation	#	Confirmation Type	Conf. Readout Pattern	Conf. Groups/Int	Conf. Integrations/Exp	Conf. Total Integrations	Conf. Total Exposure Time
	1	exp1	NRSIRS2RAPID	10	1	1	160.478
	2	exp2	NRSIRS2RAPID	10	1	1	160.478
	3	exp3	NRSIRS2RAPID	10	1	1	160.478
	4	exp4	NRSIRS2RAPID	10	1	1	160.478
	5	exp5	NRSIRS2RAPID	10	1	1	160.478
	6	exp6	NRSIRS2RAPID	10	1	1	160.478
	7	exp7	NRSIRS2RAPID	10	1	1	160.478
	8	exp8	NRSIRS2RAPID	10	1	1	160.478

Spectral Elements	#	Exposure Specification	MSA Configuration	Nod Pattern	Pointing	Aperture PA	Dispersion Offset (Shutters)	Cross-Dispersion Offset (Shutters)	Total Dithers	Total Integrations	Total Exposure Time
	1	1 (G140M/F100LP)	exp1		53.164869583333 335 Degrees - 27.793619444444 46 Degrees	45.997939912792 326	-1.57407407	-1.36792453	1	6	8403.201
	2	1 (G140M/F100LP)	exp2		53.164869791666 67 Degrees - 27.793619166666 645 Degrees	45.997906861503 154	0.0	0.0	1	6	8403.201
	3	1 (G140M/F100LP)	exp3		53.164869791666 67 Degrees - 27.793619166666 645 Degrees	45.997873912451 084	1.57407407	1.36792453	1	6	8403.201
	4	1 (G140M/F100LP)	exp4		53.164869583333 335 Degrees - 27.793619444444 46 Degrees	45.997841065638 46	3.14814815	2.73584906	1	6	8403.201
	5	1 (G140M/F100LP)	exp5		53.164869583333 335 Degrees - 27.793619444444 46 Degrees	46.000016659019 19	74.42592593	-1.36792453	1	6	8403.201
	6	1 (G140M/F100LP)	exp6		53.164869583333 335 Degrees - 27.793619444444 46 Degrees	45.999983657219 005	76.0	0.0	1	6	8403.201
	7	1 (G140M/F100LP)	exp7		53.164869583333 335 Degrees - 27.793619444444 46 Degrees	45.999950661244 54	77.57407407	1.36792453	1	6	8403.201
	8	1 (G140M/F100LP)	exp8		53.164869583333 335 Degrees - 27.793619444444 46 Degrees	45.999917671100 37	79.14814815	2.73584906	1	6	8403.201

Special Requirements	Aperture PA Range 42 to 47 Degrees (V3 263.4254303 to 268.4254303) MSA Scheduled Aperture PA 46.0000 to 46.0000 Degrees (V3 267.42545 to 267.42545)										

Proposal 3290 - Observation 2 - A complete spectroscopic census of the faintest galaxies and AGN at the dawn of galaxy formation

Tue Sep 12 18:10:07 GMT 2023

Observation	Proposal 3290, Observation 2 Diagnostic Status: Error Observing Template: NIRSpec MultiObject Spectroscopy																																																											
	Diagnostics	(Observation 2) Error (Form): No Aperture PA Range requirement contains the 137.0000197 Degrees Aperture PA assigned by the scheduling system. (Observation 2) Warning (Form): Config exp1 (#1) has 35056 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp2 (#2) has 35152 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp3 (#3) has 35181 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp4 (#4) has 35029 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp5 (#5) has 35239 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp6 (#6) has 35352 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp7 (#7) has 35366 master background shutters affected by failed open or closed shutters. (Observation 2) Warning (Form): Config exp8 (#8) has 35277 master background shutters affected by failed open or closed shutters. (Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.																																																										
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>REFSTARS</td> <td>RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000</td> <td></td> <td></td> </tr> </tbody> </table> Comments: Description=[]										#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	(3)	REFSTARS	RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000																																									
	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous																																																							
(3)	REFSTARS	RA: 03 32 38.4982 (53.1604092d) Dec: -27 47 14.07 (-27.78724d) Equinox: J2000																																																										
Acquisition	<table border="1"> <thead> <tr> <th>#</th> <th>Reference Star Bin</th> <th>Target</th> <th>Filter</th> <th>MSA Configuration</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Filter: F110W; Readout: NRSRAPIDD6; 8 sources in 4 quads; [Reduced Accuracy]</td> <td>SAME</td> <td>F110W</td> <td>Auto Acq MSA Config</td> <td>NRSRAPIDD6</td> <td>3</td> <td>1</td> <td>4</td> <td>687.153</td> <td></td> </tr> </tbody> </table>										#	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	Filter: F110W; Readout: NRSRAPIDD6; 8 sources in 4 quads; [Reduced Accuracy]	SAME	F110W	Auto Acq MSA Config	NRSRAPIDD6	3	1	4	687.153																													
	#	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID																																																	
1	Filter: F110W; Readout: NRSRAPIDD6; 8 sources in 4 quads; [Reduced Accuracy]	SAME	F110W	Auto Acq MSA Config	NRSRAPIDD6	3	1	4	687.153																																																			
Template	<table border="1"> <thead> <tr> <th>TA Method</th> <th>Obtain Confirmation Images</th> <th>Science Aperture</th> <th>Primary Candidate List</th> <th>Filler Candidate List</th> <th>Spectral Overlap Map</th> <th>Spectral Overlap Threshold</th> </tr> </thead> <tbody> <tr> <td>MSATA</td> <td>After Target ACQ and New MSA Config</td> <td>MSA Center</td> <td>REFSTARS (73 sources)</td> <td></td> <td>jwst-nirspec-g140m</td> <td>1.5</td> </tr> </tbody> </table>										TA Method	Obtain Confirmation Images	Science Aperture	Primary Candidate List	Filler Candidate List	Spectral Overlap Map	Spectral Overlap Threshold	MSATA	After Target ACQ and New MSA Config	MSA Center	REFSTARS (73 sources)		jwst-nirspec-g140m	1.5																																				
	TA Method	Obtain Confirmation Images	Science Aperture	Primary Candidate List	Filler Candidate List	Spectral Overlap Map	Spectral Overlap Threshold																																																					
MSATA	After Target ACQ and New MSA Config	MSA Center	REFSTARS (73 sources)		jwst-nirspec-g140m	1.5																																																						
Reference Stars	<table border="1"> <thead> <tr> <th>Visit</th> <th>ID</th> <th>RA</th> <th>Dec</th> <th>Magnitude</th> <th>Visit</th> <th>ID</th> <th>RA</th> <th>Dec</th> <th>Magnitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1715</td> <td>53.174538</td> <td>-27.815035</td> <td>21.771</td> <td>1</td> <td>2981</td> <td>53.158200</td> <td>-27.781143</td> <td>21.835</td> </tr> <tr> <td>1</td> <td>1933</td> <td>53.154962</td> <td>-27.809475</td> <td>22.685</td> <td>1</td> <td>3215</td> <td>53.148457</td> <td>-27.775856</td> <td>22.238</td> </tr> <tr> <td>1</td> <td>2366</td> <td>53.140998</td> <td>-27.796718</td> <td>21.489</td> <td>1</td> <td>3420</td> <td>53.158778</td> <td>-27.770599</td> <td>22.153</td> </tr> <tr> <td>1</td> <td>2707</td> <td>53.195675</td> <td>-27.787844</td> <td>22.378</td> <td>1</td> <td>3481</td> <td>53.166354</td> <td>-27.768659</td> <td>22.172</td> </tr> </tbody> </table>										Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude	1	1715	53.174538	-27.815035	21.771	1	2981	53.158200	-27.781143	21.835	1	1933	53.154962	-27.809475	22.685	1	3215	53.148457	-27.775856	22.238	1	2366	53.140998	-27.796718	21.489	1	3420	53.158778	-27.770599	22.153	1	2707	53.195675	-27.787844	22.378	1	3481	53.166354	-27.768659	22.172
	Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude																																																		
	1	1715	53.174538	-27.815035	21.771	1	2981	53.158200	-27.781143	21.835																																																		
	1	1933	53.154962	-27.809475	22.685	1	3215	53.148457	-27.775856	22.238																																																		
	1	2366	53.140998	-27.796718	21.489	1	3420	53.158778	-27.770599	22.153																																																		
	1	2707	53.195675	-27.787844	22.378	1	3481	53.166354	-27.768659	22.172																																																		

Proposal 3290 - Observation 2 - A complete spectroscopic census of the faintest galaxies and AGN at the dawn of galaxy formation

Confirmation	#	Confirmation Type	Conf. Readout Pattern	Conf. Groups/Int	Conf. Integrations/Exp	Conf. Total Integrations	Conf. Total Exposure Time
	1	exp1	NRSIRS2RAPID	10	1	1	160.478
	2	exp2	NRSIRS2RAPID	10	1	1	160.478
	3	exp3	NRSIRS2RAPID	10	1	1	160.478
	4	exp4	NRSIRS2RAPID	10	1	1	160.478
	5	exp5	NRSIRS2RAPID	10	1	1	160.478
	6	exp6	NRSIRS2RAPID	10	1	1	160.478
	7	exp7	NRSIRS2RAPID	10	1	1	160.478
	8	exp8	NRSIRS2RAPID	10	1	1	160.478

Spectral Elements	#	Exposure Specification	MSA Configuration	Nod Pattern	Pointing	Aperture PA	Dispersion Offset (Shutters)	Cross-Dispersion Offset (Shutters)	Total Dithers	Total Integrations	Total Exposure Time
	1	1 (G140M/F100LP)	exp1		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	137.00010608390 923	-1.57407407	-1.36792453	1	6	8403.201
	2	1 (G140M/F100LP)	exp2		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99998917132 845	0.0	0.0	1	6	8403.201
	3	1 (G140M/F100LP)	exp3		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99987227241 542	1.57407407	1.36792453	1	6	8403.201
	4	1 (G140M/F100LP)	exp4		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99975538714 088	3.14814815	2.73584906	1	6	8403.201
	5	1 (G140M/F100LP)	exp5		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99793819718 016	74.42592593	-1.36792453	1	6	8403.201
	6	1 (G140M/F100LP)	exp6		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99782143876 632	76.0	0.0	1	6	8403.201
	7	1 (G140M/F100LP)	exp7		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99770469342 693	77.57407407	1.36792453	1	6	8403.201
	8	1 (G140M/F100LP)	exp8		53.160431666666 67 Degrees - 27.793497222222 243 Degrees	136.99758796113 022	79.14814815	2.73584906	1	6	8403.201

Special Requirements	Aperture PA Range 132 to 137 Degrees (V3 353.4254303 to 358.4254303) MSA Scheduled Aperture PA 137.0000 to 137.0000 Degrees (V3 358.42545 to 358.42545)										