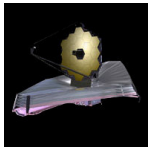

2516 - Revealing the hidden stellar emission in the highest-fidelity ALMA-mapped submillimeter galaxies

Cycle: 1, Proposal Category: GO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
NIRCam imaging				
	1	NIRCam Pointing 1	NIRCam Imaging	(1) NIRCAM-PT-1
	2	NIRCam Pointing 2	NIRCam Imaging	(2) NIRCAM-PT-2

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
	12	NIRCam Pointing 2 Repeat of Observation 2	NIRCam Imaging	(2) NIRCAM-PT-2
	3	NIRCam Pointing 3	NIRCam Imaging	(3) NIRCAM-PT-3
	4	NIRCam Pointing 4	NIRCam Imaging	(4) NIRCAM-PT-4
MIRI imaging				
	5	MIRI Pointing 1	MIRI Imaging	(5) MIRI-PT-1
	6	MIRI Pointing 2	MIRI Imaging	(6) MIRI-PT-2
	7	MIRI Pointing 3	MIRI Imaging	(7) MIRI-PT-3
	8	MIRI Pointing 4	MIRI Imaging	(8) MIRI-PT-4
	9	MIRI Pointing 5	MIRI Imaging	(9) MIRI-PT-5
	10	MIRI Pointing 6	MIRI Imaging	(10) MIRI-PT-6

ABSTRACT

Twenty years after their discovery, the nature of the most highly star-forming galaxies in the universe remains a mystery. Despite forming stars at 100s-1000s M_sol yr^-1, these z~2.5 submillimeter-bright galaxies (SMGs) are notoriously difficult to study with optical telescopes due to their extreme dust obscuration, rendering them faint/invisible even in deep HST H-band imaging, and leading to decades of debate on whether major mergers are necessary to trigger their starbursts. Recently, ALMA has revolutionized the field by revealing the obscured star formation in SMGs in unprecedented detail. Here we propose NIRCam+MIRI imaging at 2-7um of 12 SMGs with unrivaled high-S/N ALMA continuum imaging, which span a range in redshift and SFRs reflective of the larger SMG population. By detecting and resolving the stellar emission at rest-frame ~500nm to (crucially) 2um — a jump of a factor of 5 in rest-wavelength over the HST H-band — these observations will put first constraints on the underlying morphologies of the stellar emission in these sources, and at a resolution that is perfectly matched to that of the high-S/N ALMA imaging. This proposal will provide maps of resolved stellar mass and star formation rate (and thus, the specific star formation rate), and will yield first reliable total masses for this historically unconstrained population. These observations will provide the context necessary to interpret the ALMA-revealed star formation and its ability to morphologically transform SMGs into their proposed descendants – massive local elliptical galaxies.

OBSERVING DESCRIPTION

This proposal intends to observe a sample of highly star forming galaxies spanning redshifts from 0.76 to 4.95, with NIRCam and MIRI imaging. The goals of the observations are to reveal and classify the underlying stellar morphology of these galaxies, and construct high-fidelity spatially resolved mass maps. The observations will be carried out with two NIRCam filter combinations, F200W+FF356W and F200W+F444W, and one MIRI filter, F770W. A sample of 12 galaxies will be observed in 4 pointings with NIRCam and 6 with MIRI; each of these will be dithered for

optimal sampling and mitigation of bad pixel and cosmic ray issues.

The individual galaxies are not listed as targets, as multiple galaxies can be covered per pointing. The targets listed in the proposal therefore represent the centers of these pointing locations, and the dither patterns have been chosen to maximize the area imaged to full depth (noting that the sources are not bright and we therefore do not expect persistence to be an issue). The observations contain position angle restrictions where there is a danger of targets rotating off the detector array; these restrictions have been kept to a minimum to maintain scheduling flexibility. In accordance with the recommendations, we ask for background-limited observations. Given the small sizes of our targets on the field of view, separate background observations are not required.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	NIRCAM-PT-1	RA: 03 33 35.5159 (53.3979829d) Dec: -27 58 56.39 (-27.98233d) Equinox: J2000		
Comments: Covers targets ALESS 15.1, 29.1, and 76.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				
(2)	NIRCAM-PT-2	RA: 03 33 18.2801 (53.3261671d) Dec: -27 55 39.71 (-27.92770d) Equinox: J2000		
Comments: Covers targets ALESS 1.1, 1.2, 1.3, and 3.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				
(3)	NIRCAM-PT-3	RA: 03 32 15.8935 (53.0662229d) Dec: -27 51 54.35 (-27.86510d) Equinox: J2000		
Comments: Covers targets ALESS 9.1, 10.1, 17.1, and 45.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				
(4)	NIRCAM-PT-4	RA: 03 32 52.1025 (53.2170937d) Dec: -27 31 45.11 (-27.52920d) Equinox: J2000		
Comments: Covers target ALESS 112.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				
(5)	MIRI-PT-1	RA: 03 33 36.9009 (53.4037537d) Dec: -27 58 9.74 (-27.96937d) Equinox: J2000		
Comments: Covers target ALESS 29.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				
(6)	MIRI-PT-2	RA: 03 33 32.8399 (53.3868329d) Dec: -27 59 41.30 (-27.99481d) Equinox: J2000		
Comments: Covers targets ALESS 15.1 and 76.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				
(7)	MIRI-PT-3	RA: 03 33 18.1070 (53.3254458d) Dec: -27 55 47.66 (-27.92991d) Equinox: J2000		
Comments: Covers targets ALESS 1.1, 1.2, 1.3, and 3.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*				

(8)	MIRI-PT-4	RA: 03 32 21.8661 (53.0911088d) Dec: -27 52 24.66 (-27.87352d) Equinox: J2000
Comments: Covers targets ALESS 10.1 and 45.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*		
(9)	MIRI-PT-5	RA: 03 32 9.2867 (53.0386946d) Dec: -27 51 47.42 (-27.86317d) Equinox: J2000
Comments: Covers targets ALESS 9.1 and 17.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*		
(10)	MIRI-PT-6	RA: 03 32 48.8262 (53.2034425d) Dec: -27 31 17.80 (-27.52161d) Equinox: J2000
Comments: Covers target ALESS 112.1 *Category=Galaxy* *Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]* *Extended=YES*		

Observation

Proposal 2516, Observation 1: NIRCam Pointing 1

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: 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)	NIRCAM-PT-1	RA: 03 33 35.5159 (53.3979829d) Dec: -27 58 56.39 (-27.98233d) Equinox: J2000		

Comments: Covers targets ALESS 15.1, 29.1, and 76.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Module	Subarray	Target Placement
B	FULL	Module Gap

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F444W	SHALLOW4	9	1	4	4	1889.672	
2	F200W	F356W	SHALLOW4	9	1	4	4	1889.672	

Special Requirements

Aperture PA Range 248.02984889 to 274.02984889 Degrees (V3 247.9740136 to 273.9740136)
Aperture PA Range 334.02984889 to 352.02984889 Degrees (V3 333.9740136 to 351.9740136)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 2: NIRCam Pointing 2

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: 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)	NIRCAM-PT-2	RA: 03 33 18.2801 (53.3261671d) Dec: -27 55 39.71 (-27.92770d) Equinox: J2000		

Comments: Covers targets ALESS 1.1, 1.2, 1.3, and 3.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Module	Subarray	Target Placement
B	FULL	Module Gap

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F444W	SHALLOW4	9	1	4	4	1889.672	
2	F200W	F356W	SHALLOW4	9	1	4	4	1889.672	

Special Requirements

Aperture PA Range 187.02984889 to 228.02984889 Degrees (V3 186.9740136 to 227.9740136)
Aperture PA Range 252.02984889 to 313.02984889 Degrees (V3 251.9740136 to 312.9740136)
Aperture PA Range 352.52984889 to 25.02984889 Degrees (V3 352.4740136 to 24.9740136)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 12: NIRCam Pointing 2 Repeat of Observation 2

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	NIRCAM-PT-2	RA: 03 33 18.2801 (53.3261671d) Dec: -27 55 39.71 (-27.92770d) Equinox: J2000		

Comments: Covers targets ALESS 1.1, 1.2, 1.3, and 3.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Module	Subarray	Target Placement
B	FULL	Module Gap

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F444W	SHALLOW4	9	1	4	4	1889.672	
2	F200W	F356W	SHALLOW4	9	1	4	4	1889.672	

Special Requirements

Aperture PA Range 187.02984889 to 228.02984889 Degrees (V3 186.9740136 to 227.9740136)
Aperture PA Range 252.02984889 to 313.02984889 Degrees (V3 251.9740136 to 312.9740136)
Aperture PA Range 352.52984889 to 25.02984889 Degrees (V3 352.4740136 to 24.9740136)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 3: NIRCam Pointing 3

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: 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)	NIRCAM-PT-3	RA: 03 32 15.8935 (53.0662229d) Dec: -27 51 54.35 (-27.86510d) Equinox: J2000		

Comments: Covers targets ALESS 9.1, 10.1, 17.1, and 45.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Module	Subarray	Target Placement
ALL	FULL	Module Gap

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F444W	SHALLOW4	9	1	4	4	1889.672	
2	F200W	F356W	SHALLOW4	9	1	4	4	1889.672	

Special Requirements

Aperture PA Range 19.58744876 to 42.98744876 Degrees (V3 19.65880186 to 43.05880186)
Aperture PA Range 349.88744876 to 11.38744876 Degrees (V3 349.95880186 to 11.45880186)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 4: NIRCam Pointing 4

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: 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)	NIRCAM-PT-4	RA: 03 32 52.1025 (53.2170937d) Dec: -27 31 45.11 (-27.52920d) Equinox: J2000		

Comments: Covers target ALESS 112.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Module	Subarray	Target Placement
B	FULL	Module Gap

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F444W	SHALLOW4	9	1	4	4	1889.672	
2	F200W	F356W	SHALLOW4	9	1	4	4	1889.672	

Special Requirements

Aperture PA Range 245.02984889 to 195.02984889 Degrees (V3 244.9740136 to 194.9740136)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 5: MIRI Pointing 1

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	MIRI-PT-1	RA: 03 33 36.9009 (53.4037537d) Dec: -27 58 9.74 (-27.96937d) Equinox: J2000		

Comments: Covers target ALESS 29.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets				5	3	POINT SOURCE	POSITIVE	DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	55	1	1	Dither 1	12	12	1831.526	

Special Requirements

Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 6: MIRI Pointing 2

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	MIRI-PT-2	RA: 03 33 32.8399 (53.3868329d) Dec: -27 59 41.30 (-27.99481d) Equinox: J2000		

Comments: Covers targets ALESS 15.1 and 76.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets				5	3	POINT SOURCE	POSITIVE	DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	55	1	1	Dither 1	12	12	1831.526	

Special Requirements

Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 7: MIRI Pointing 3 Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Comments: PA range restricted so that 4 targets can be covered by a single pointing (but exact setup chosen to coincide with the peak number of days available)

Diagnostics

(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(7)	MIRI-PT-3	RA: 03 33 18.1070 (53.3254458d) Dec: -27 55 47.66 (-27.92991d) Equinox: J2000		

Comments: Covers targets ALESS 1.1, 1.2, 1.3, and 3.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets				5	1	POINT SOURCE	POSITIVE	DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	165	1	1	Dither 1	4	4	1831.526	

Special Requirements

Aperture PA Range 28.83425324 to 33.23425324 Degrees (V3 23.99880427 to 28.39880427)
Aperture PA Range 259.83425324 to 276.33425324 Degrees (V3 254.99880427 to 271.49880427)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 8: MIRI Pointing 4

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(8)	MIRI-PT-4	RA: 03 32 21.8661 (53.0911088d) Dec: -27 52 24.66 (-27.87352d) Equinox: J2000		

Comments: Covers targets ALESS 10.1 and 45.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets				5	1	POINT SOURCE	POSITIVE	DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	165	1	1	Dither 1	4	4	1831.526	

Special Requirements

Aperture PA Range 53.83425324 to 138.83425324 Degrees (V3 48.99880427 to 133.99880427)
Aperture PA Range 232.83425324 to 320.83425324 Degrees (V3 227.99880427 to 315.99880427)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 9: MIRI Pointing 5

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(9)	MIRI-PT-5	RA: 03 32 9.2867 (53.0386946d) Dec: -27 51 47.42 (-27.86317d) Equinox: J2000		

Comments: Covers targets ALESS 9.1 and 17.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets				5	1	POINT SOURCE	POSITIVE	DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	165	1	1	Dither 1	4	4	1831.526	

Special Requirements

Aperture PA Range 75.83425324 to 190.83425324 Degrees (V3 70.99880427 to 185.99880427)
Aperture PA Range 257.83425324 to 12.83425324 Degrees (V3 252.99880427 to 7.99880427)
Background Limited. Background no more than 10th percentile above minimum

Observation

Proposal 2516, Observation 10: MIRI Pointing 6

Mon May 22 14:00:34 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(10)	MIRI-PT-6	RA: 03 32 48.8262 (53.2034425d) Dec: -27 31 17.80 (-27.52161d) Equinox: J2000		

Comments: Covers target ALESS 112.1
Category=Galaxy
Description=[High-redshift galaxies, Starburst galaxies, Ultraluminous infrared galaxies]
Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets				5	3	POINT SOURCE	POSITIVE	DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	55	1	1	Dither 1	12	12	1831.526	

Special Requirements

Background Limited. Background no more than 10th percentile above minimum