



4476 - SOSS Aperture Correction

Cycle: 2, Proposal Category: CAL/NIRISS

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Kevin Volk (PI) (CSA Member)	Space Telescope Science Institute - CSA - JWST
Dr. Nestor Espinoza (CoI)	Space Telescope Science Institute

OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
Observation Folder				
	2	SOSS normal acquisition	NIRISS External Calibration	(10) TYC-4213-1116-1
	3	SOSS offset	NIRISS External Calibration	(10) TYC-4213-1116-1

ABSTRACT

An isolated, bright star will be observed in the NIRISS SOSS mode, but with full frame read-out and with the spectrum offset from the top of the array down to the centre so that measurements of the total signal including the far wings of the profile can be made. By comparing the total signal to the signal within the normal spectral extraction aperture the aperture corrections will be estimated for orders 1 and 2 in the SOSS mode.

This calibration program may change in response to system developments and the final Cycle 2 science program.

OBSERVING DESCRIPTION

We request the observation of a bright ($K=9.762$) isolated star in the NIRISS SOSS mode, with the spectrum offset from the normal position "down" about 800 pixels to the centre of the full array. The purpose of the observation is to measure the wings of the spatial profile of the spectrum along the pixel y direction, which will be used to derive the aperture correction to apply to the normal spectral extractions done in science exposures. The

JWST Proposal 4476 (Created: Friday, June 23, 2023 at 8:00:54 PM Eastern Standard Time) - Overview

GR700XD grism produces a highly distorted monochromatic PSF with very broad wings extending at least 200 pixels in both directions from the centre of the trace, hence this cannot be measured with the spectrum in the normal position at the top edge of the detector or with the normal SUBSTRIP256 sub-array. In principle the aperture corrections are not needed in the case where the photometric calibration and the science exposures use precisely the same extraction aperture (both in terms of the acquisition of the star to the exact same position on the detector and in terms of the rotation of the trace on the detector), but experience in cycle 1 has shown that there are small variations in the rotation and small offsets of the trace position which make this assumption somewhat inaccurate. We therefore need on-sky observations of the spectrum in a position where we can trace the profile far beyond the usual aperture.

The program consists of a short spectral observation in the normal position followed by a much longer observation at the offset position. The initial spectrum will be used to extract the spectrum with the normal pipeline spectrum for comparison with the spectrum at the offset point which will have to be extracted with special software. This is needed to correct for any small effects on the spectrum from the offset from the normal position to the centre of the array.

Proposal 4476 - Targets - SOSS Aperture Correction

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	BD+12-145	RA: 01 12 25.6869 (18.1070287d) Dec: +13 27 2.53 (13.45070d) Equinox: J2000	Proper Motion RA: 7.479149934607449E-4 sec of time/yr Proper Motion Dec: -0.003993999985141272 arcsec/yr Epoch of Position: 2015.5	
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[F dwarfs]				
(2)	BD+67-1048	RA: 18 05 35.2784 (271.3969933d) Dec: +67 07 58.91 (67.13303d) Equinox: J2000	Proper Motion RA: 1.0859695732097469E-4 sec of time/yr Proper Motion Dec: 0.027677000000000004 arcsec/yr Epoch of Position: 2015.5	
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[F dwarfs]				
(3)	2MASSJ19205569+6607382	RA: 19 20 55.6714 (290.2319642d) Dec: +66 07 38.14 (66.12726d) Equinox: J2000	Proper Motion RA: -2.396 mas/yr Proper Motion Dec: -5.135 mas/yr Parallax: 0.000316" Epoch of Position: 2016.0	
<i>Comments:</i> Category=Star Description=[A dwarfs] Extended=NO				
(4)	2MASSJ00570125	RA: 00 57 1.2605 (14.2552521d) Dec: -03 16 57.32 (-3.28259d) Equinox: J2000	Proper Motion RA: 7.1 mas/yr Proper Motion Dec: -5.0 mas/yr Parallax: 0.000133" Epoch of Position: 2016	
<i>Comments:</i> Category=Star Description=[A stars] Extended=NO				
(5)	2MASSJ23035569	RA: 23 03 55.7122 (345.9821342d) Dec: -62 56 9.35 (-62.93593d) Equinox: J2000	Proper Motion RA: 4.11 mas/yr Proper Motion Dec: -23.03 mas/yr Parallax: 0.000263" Epoch of Position: 2016.0	
<i>Comments:</i> Category=Star Description=[F dwarfs]				
(6)	TYC-4154-571-1	RA: 11 52 8.4375 (178.0351562d) Dec: +61 11 5.51 (61.18486d) Equinox: J2000	Proper Motion RA: -6.359808693135992E-4 sec of time/yr Proper Motion Dec: 0.007157 arcsec/yr Epoch of Position: 2015.5	
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[A dwarfs] Extended=NO				

Fixed Targets

Proposal 4476 - Targets - SOSS Aperture Correction

(7)	TYC-4206-1178-1	RA: 17 22 11.3571 (260.5473212d) Dec: +64 05 48.67 (64.09685d) Equinox: J2000	Proper Motion RA: -3.433663326745111E-5 sec of time/yr Proper Motion Dec: -0.05042800005412573 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[A dwarfs]</p>			
(8)	TYC-4549-1974-1	RA: 10 55 23.6035 (163.8483479d) Dec: +75 10 55.16 (75.18199d) Equinox: J2000	Proper Motion RA: -0.0015705461775301682 sec of time/yr Proper Motion Dec: -0.0015660000144634978 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[A dwarfs]</p>			
(9)	BD+25-2602	RA: 13 09 25.4932 (197.3562217d) Dec: +24 19 24.82 (24.32356d) Equinox: J2000	Proper Motion RA: -0.0061128829227848356 sec of time/yr Proper Motion Dec: -0.01846499994826445 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[A stars]</p>			
(10)	TYC-4213-1116-1	RA: 18 02 47.9032 (270.6995967d) Dec: +65 58 15.96 (65.97110d) Equinox: J2000	Proper Motion RA: 9.723375775134584E-4 sec of time/yr Proper Motion Dec: -0.005406999980550609 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[A stars]</p>			

Proposal 4476 - Observation 2 - SOSS Aperture Correction

Sat Jun 24 01:00:54 GMT 2023

Observation	Proposal 4476, Observation 2: SOSS normal acquisition Diagnostic Status: Warning Observing Template: NIRISS External Calibration																																														
Diagnostics	(SOSS normal acquisition (Obs 2)) Warning (Form): NGROUPS=1 may suffer from low calibration accuracy. (Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (SOSS normal acquisition (Obs 2)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.																																														
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Proposal 4476 - Observation 2 - SOSS Aperture Correction

Special Requirements

Sequence Observations 2, 3, Non-interruptible
Same Aperture PA 2, 3

Proposal 4476 - Observation 3 - SOSS Aperture Correction

Sat Jun 24 01:00:54 GMT 2023

Observation	<p>Proposal 4476, Observation 3: SOSS offset</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRISS External Calibration</p>																																														
Diagnostics	<p>(SOSS offset (Obs 3)) Warning (Form): NGROUPS=1 may suffer from low calibration accuracy.</p> <p>(SOSS offset (Obs 3)) Warning (Form): The slew between the acquisition exposure and the farthest science exposure is 67.100 Arcsec (larger than the recommended limit of 55.000 Arcsec) and may result in reduced or no schedulability. See more information in the diagnostic browser.</p> <p>(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(SOSS offset (Obs 3)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.</p>																																														
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Proposal 4476 - Observation 3 - SOSS Aperture Correction

Special Requirements

Offset 0.0 arcsec, -67.1 arcsec

Sequence Observations 2, 3, Non-interruptible

Same Aperture PA 2, 3