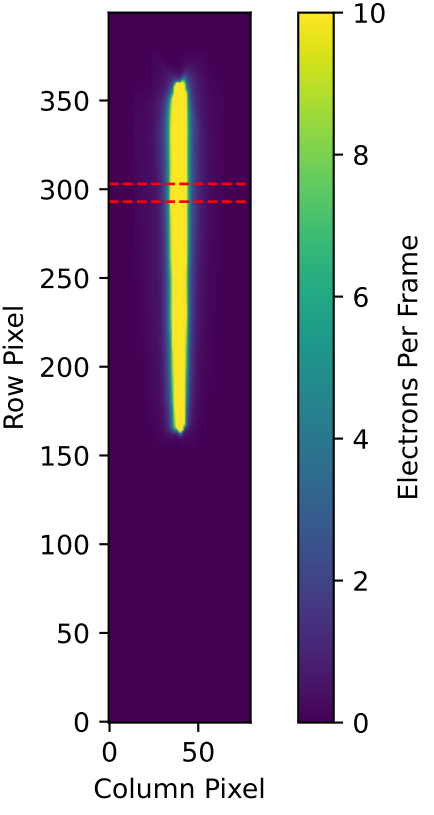
Pandora Data Processing Center
NIRDA PSF Requirements Test Report

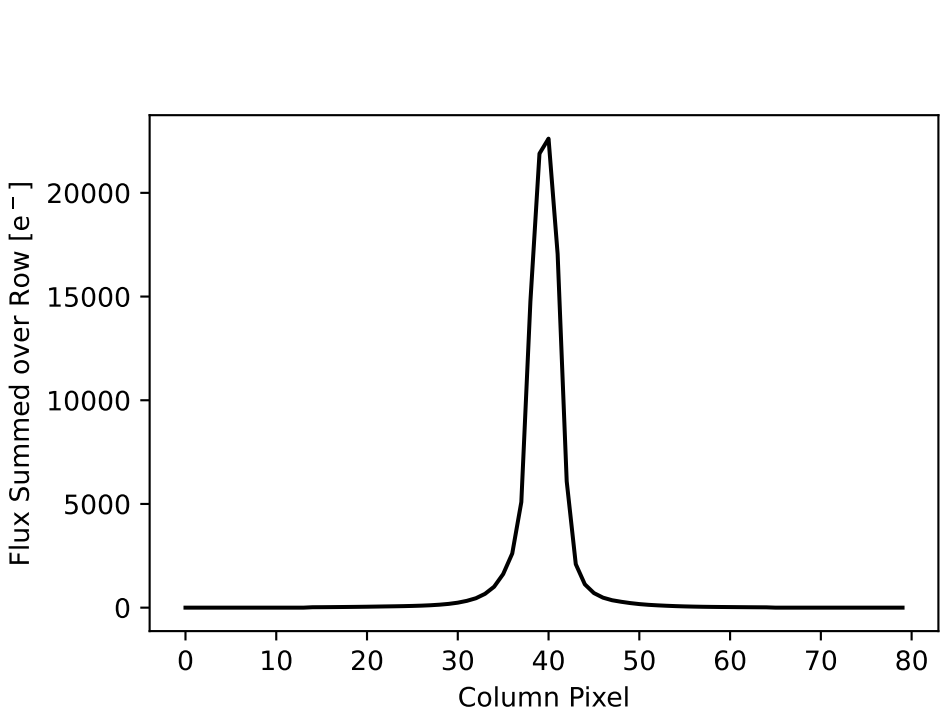
Package Versions:
- pandora_requirements: 0.1.2
- pandorapsf: 0.7.0
- pandorasat: 0.12.2
- astropy: 6.0.1

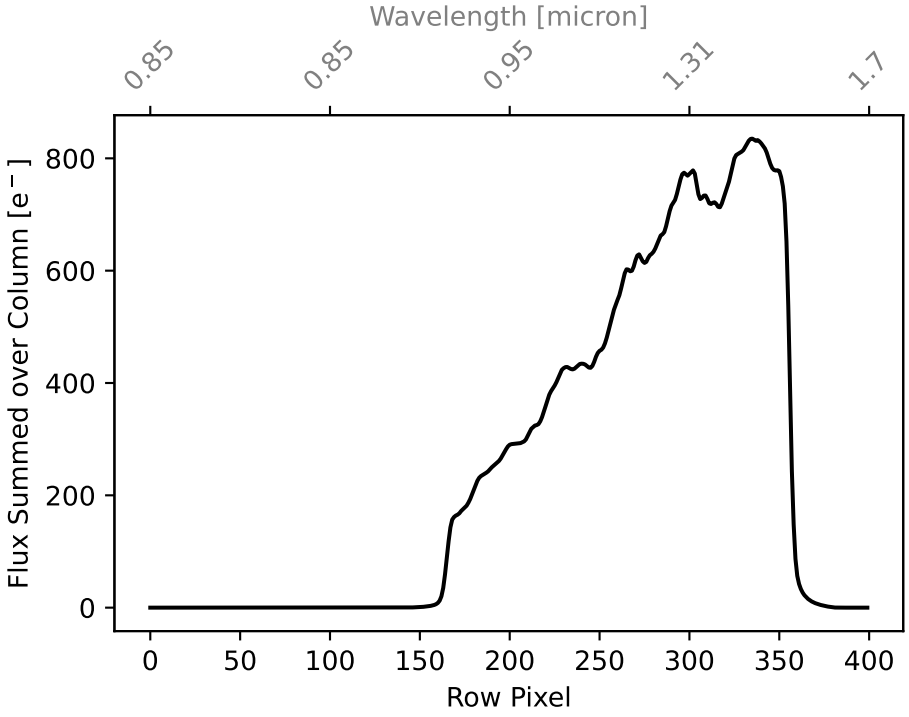
Detector Characteristics:
zodiacal_background_rate: 4.0 electron / (pix s)
stray_light_rate: 2.0 electron / (pix s)
thermal_background_rate: 10.0 electron / (pix s)
dark: 1.0 electron / (pix s)
readnoise: 12.727922061357855 electron / pix

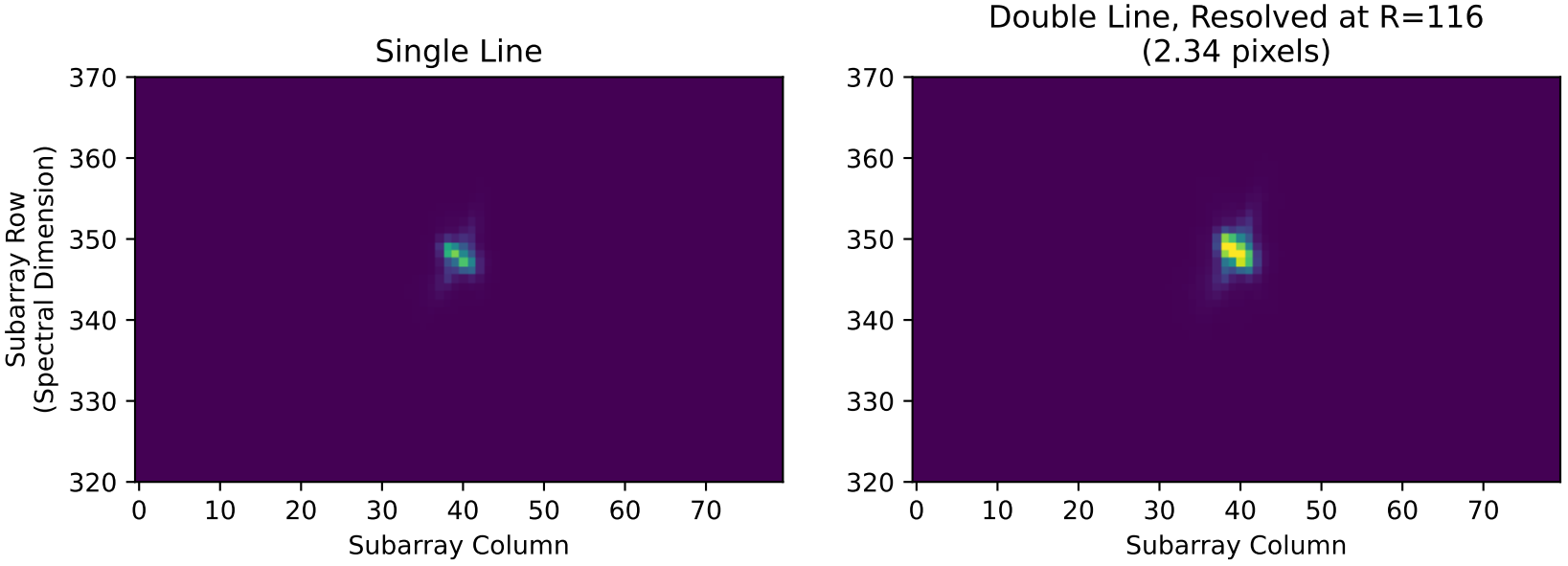
Test Requriements:
- Target Test j band Magnitude: 9.0
- Target Test T_{eff}: 3500.0 K
- Required Number of Integrations: 900
- Required SNR: 6000.0
- Required Wavelength: 1.3 micron micron
- Required R: 30.0

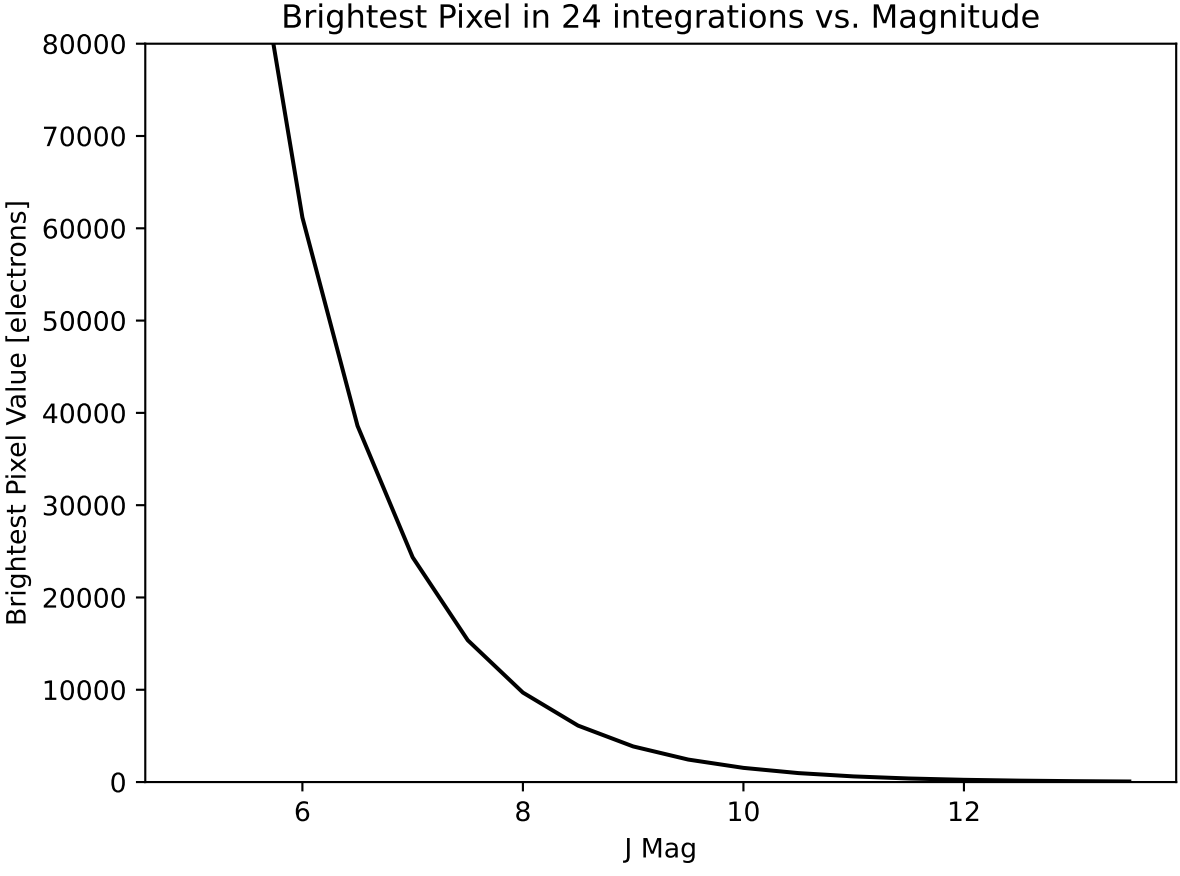
Additional Information:
- This document contains test results for a target star on the NIRDA.
- Generated using automated tests and visualizations.
- This test uses CBE for all Pandora parameters
- This test assumes no jitter motion between frames.

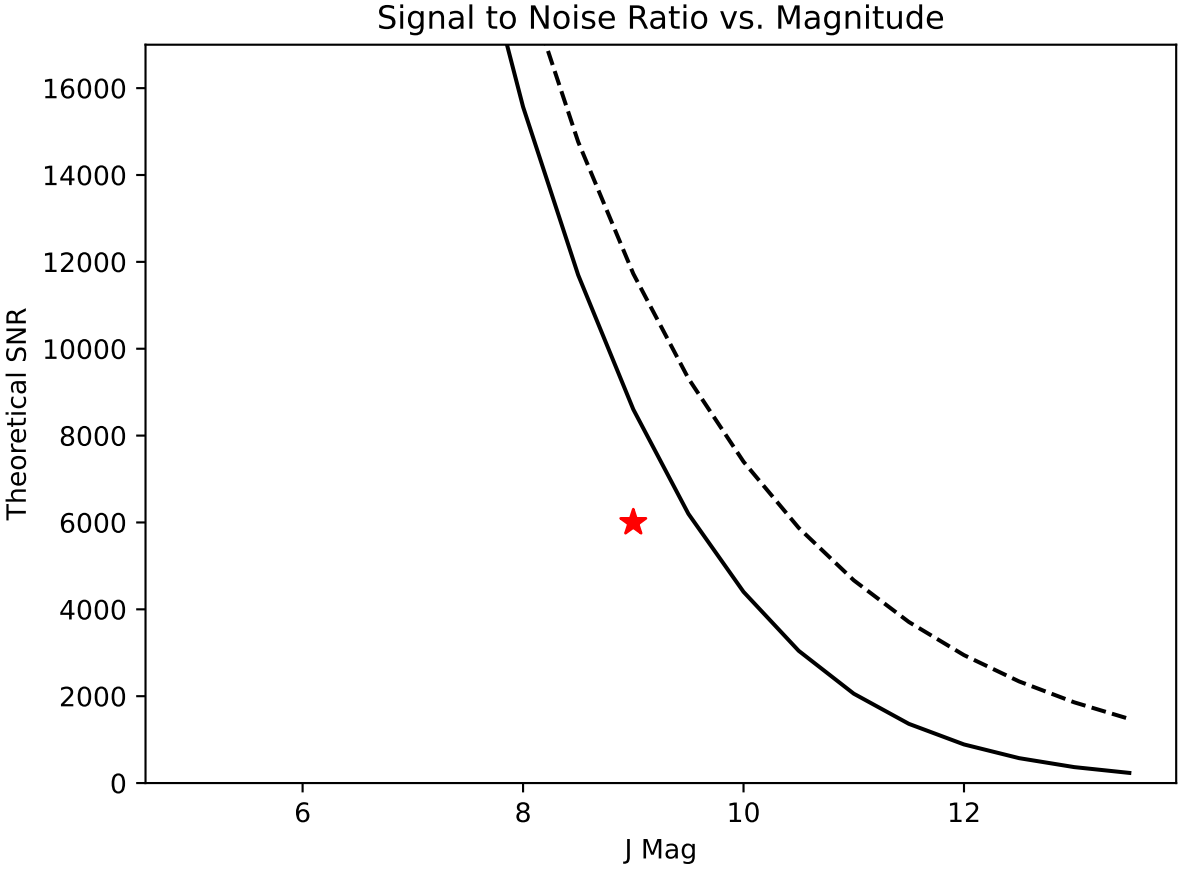

Row Pixel
Column Pixel
Electrons Per Frame
0
50
100
150
200
250
300
350
0
50
0
2
4
6
8
10

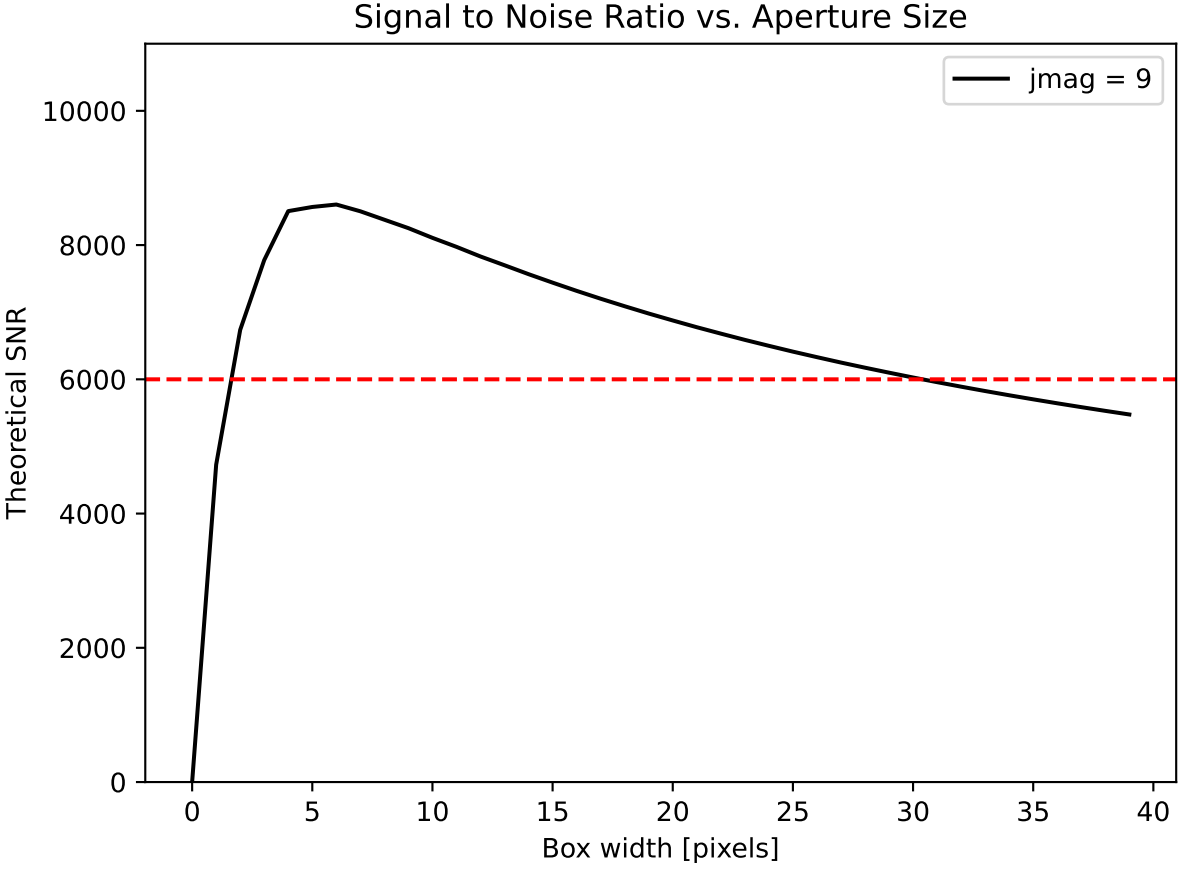

Flux Summed over Row [e⁻]
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
Column Pixel

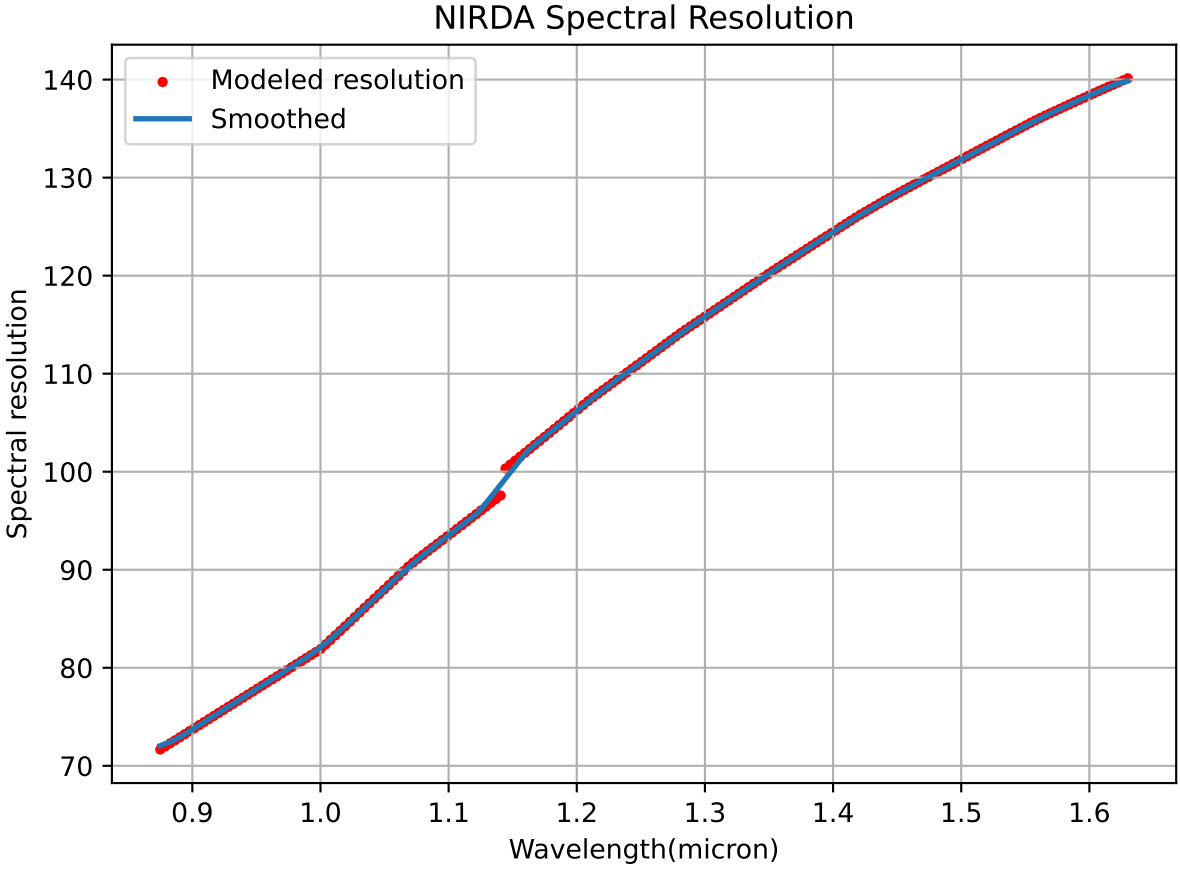

Wavelength [micron]
0.85
0.85
0.95
1.31
1.7
Flux Summed over Column [e⁻]
800
600
400
200
0
0
50
100
150
200
250
300
350
400
Row Pixel


Single Line
Subarray Row
(Spectral Dimension)
370
360
350
340
330
320
0
10
20
30
40
50
60
70
Subarray Column
Double Line, Resolved at R=116
(2.34 pixels)
370
360
350
340
330
320
0
10
20
30
40
50
60
70
Subarray Column


Brightest Pixel in 24 integrations vs. Magnitude
Brightest Pixel Value [electrons]
80000
70000
60000
50000
40000
30000
20000
10000
0
6
8
10
12
J Mag


Signal to Noise Ratio vs. Magnitude
Theoretical SNR
J Mag
0
2000
4000
6000
8000
10000
12000
14000
16000
6
8
10
12


Signal to Noise Ratio vs. Aperture Size
jmag = 9
Theoretical SNR
Box width [pixels]
0
2000
4000
6000
8000
10000
0
5
10
15
20
25
30
35
40


NIRDA Spectral Resolution
Modeled resolution
Smoothed
Spectral resolution
Wavelength(micron)
140
130
120
110
100
90
80
70
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6