

Gemini Integration Time Calculator

GMOS-N - 2021A.1.1.1

[Click here for help with the results page.](#)

Read noise: 3.6

software aperture extent along slit = 1.28 arcsec

fraction of source flux in aperture = 0.71

derived image size(FWHM) for a point source = 0.91 arcsec

Sky subtraction aperture = 5.0 times the software aperture.

Requested total integration time = 36000.00 secs, of which 36000.00 secs is on source.

The peak pixel signal + background is 5242 e- (3215 ADU). This is 5% of the saturation limit of 106822 e-.

Observation Overheads

Setup	6 acq x 960.0 s	
Telescope offset	20 x 7.0 s	assuming ABBA dithering pattern
Exposure	40 x 900.0 s	
Readout	40 x 24.3 s	
DHS Write	40 x 10.0 s	
Program time	12 hours 1 min 13 secs	

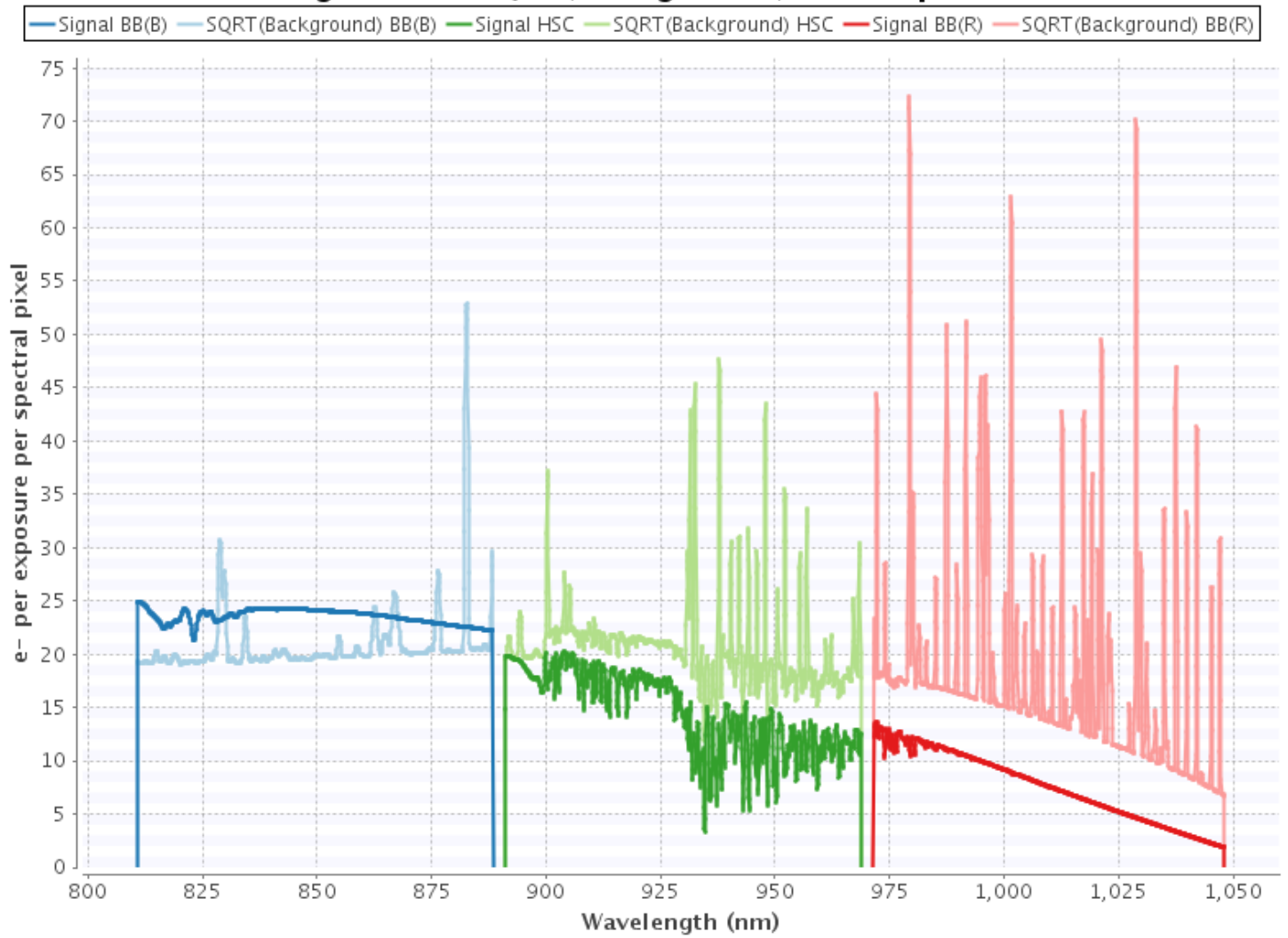
[Click here for ASCII signal spectrum.](#)

[Click here for ASCII background spectrum.](#)

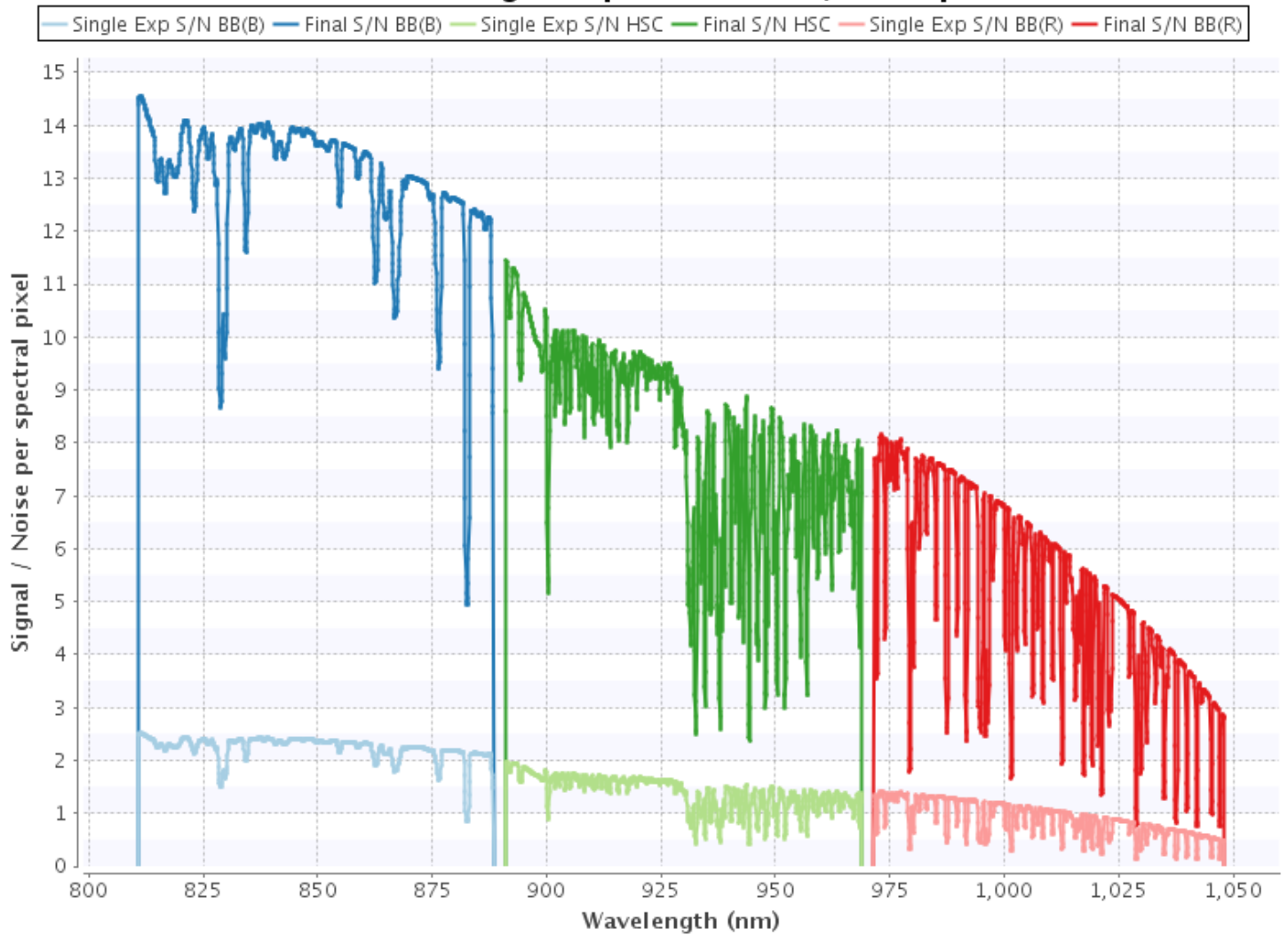
[Click here for Single Exposure S/N ASCII data.](#)

[Click here for Final S/N ASCII data.](#)

Signal and SQRT(Background) in one pixel



Intermediate Single Exp and Final S/N in aperture



Output:

- Spectra autoscaled.

Input Parameters:

Instrument: GMOS-N

Source spatial profile, brightness, and spectral distribution:

The $z = 0.00000$ point source is a power-law with an index of -1.0, and $1.0E-5$ Jy in the J band.

Instrument configuration:

Optical Components:

- Fixed Optics
- Grating Optics: R831_G5302
- Detector - Hamamatsu array

Amp gain: Low, Amp read mode: Slow

- Focal Plane Mask: Longslit 1.00 arcsec

Region of Interest: Full Frame Readout

Central Wavelength: 930.0 nm

Spatial Binning (imaging mode: same in x and y, spectroscopy mode: y-binning): 2

Spectral Binning (x-binning): 2

Pixel Size in Spatial Direction: 0.161556arcsec

Pixel Size in Spectral Direction: 0.076nm

Telescope configuration:

- silver mirror coating.
- side looking port.
- wavefront sensor: oiwfs

Observing Conditions:

- Image Quality: 70.00%
- Sky Transparency (cloud cover): 50.00%
- Sky transparency (water vapour): 100.00%
- Sky background: 80.00%
- Airmass: 1.50

Likelihood of execution: 28.00%

Calculation and analysis methods:

- Mode: spectroscopy
- Calculation of S/N ratio with 40 exposures of 900.00 secs, and 100.00% of them on source.
- Analysis performed for aperture that gives 'optimum' S/N and a sky aperture that is 5.00 times the target aperture.