This chapter provides basic information and sensitivity plots for the imaging and polarimetric filters. The corresponding information for the grism elements is provided in Chapter 5. The spectral characteristics of the NICMOS flight filters were measured at cryogenic temperature and normal incidence at Ball Aerospace. All filters had their spectral transmission measured from 0.5 to 2.7 microns with a step of 0.001 microns. For each filter, we provide the following information:

1. A plot of the filter throughput, which convolves the filter transmission curve with the OTA, the NICMOS foreoptics and the predicted detector's response under NCS operations. A listing of the central, mean, and peak wavelengths, of the wavelength range, filter width, transmission peak, and the fraction of the PSF contained in one pixel (assuming the source is centered on the pixel) is also given.

2. Sensitivity curves for each filter. The curves are calculated for both an extended and a point source, assuming in both cases a flat spectrum \([F(\lambda)]\). The curves give the flux as a function of time needed to reach \(S/N=3\) and \(S/N=10\), respectively (continuous and dotted lines). For the extended sources, the flux is given in Jy/arcsec^2 and the S/N is calculated per pixel; for the point sources, the flux is given in Jy, and the S/N is calculated in a 0.5" radius aperture (NIC1 and NIC2) or 1" radius aperture (NIC3). The continuous lines correspond to the best scenario for dark current (0.5 e^-/s), while the dotted lines correspond to the worst case scenario (2.5 e^-/s). In all cases, the adopted read-out noise is ~30 e^- and the DQE is that expected for operations at 75 K (see Chapter 8). The sky background, as listed in Chapter 9, is included in all computations. The saturation limit as a function of time is also shown (dashed line); for the extended sources, we have computed the flux which saturates the pixel (the aperture), while for point sources we have computed the flux needed to saturate the brightest pixel (assuming the source is centered on the pixel). The range of times given goes from 0.2 to ~3,000 seconds, although we advice observers not to use
exposures longer than about 1/3-1/2 orbit (t < 1500-1600 seconds, see Chapter 3).

Proposers should always assume the worst case scenario for the NICMOS dark current (see Chapter 8) to calculate exposure times.
Camera 1, Filter F090M

Figure A1.1: F090M Throughput

Central wavelength: 0.9003 µm
Mean wavelength: 0.8970 µm
Peak wavelength: 0.9175 µm
Wavelength range: 0.8-1.0 µm
FWHM: 0.1885 µm
Maximum throughput: 6.87%
Pixel fraction: 0.150

Figure A1.2: F090M Sensitivity Curves

Extended Source in 1 pixel Aperture
Point Source in 0.5° Radius Aperture

Saturated

S/N = 10

S/N = 3

Best case dark current
Worst case dark current

S/N = 10

S/N = 3

Best case dark current
Worst case dark current
Camera 1, Filter F095N

Figure A1.3: NIC1, F095N Throughput

Notes:
[S III] line.

Central wavelength: 0.9538 µm
Mean wavelength: 0.9536 µm
Peak wavelength: 0.9508 µm
Wavelength range: 1%
FWHM: 0.0088 µm
Maximum throughput: 5.66%
Pixel fraction: 0.136

Figure A1.4: NIC1, F095N Sensitivity Curves
Camera 1, Filter F097N

Notes:
[S III] continuum.

Central wavelength: 0.9717 µm
Mean wavelength: 0.9715 µm
Peak wavelength: 0.9740 µm
Wavelength range: 1%
FWHM: 0.0094 µm
Maximum throughput: 6.73%
Pixel fraction: 0.131

Figure A1.5: NIC1, F097N Throughput

![Throughput Diagram]

Figure A1.6: NIC1, F097N Sensitivity Curves

![Sensitivity Curves Diagram]
Camera 1, Filter F108N

Notes:
[He I] line.
See also “Camera 3, Filter F108N”

Central wavelength: 1.0817 µm
Mean wavelength: 1.0816 µm
Peak wavelength: 1.0790 µm
Wavelength range: 1%
FWHM: 0.0094 µm
Maximum throughput: 8.14%
Pixel fraction: 0.111
Camera 1, Filter F110M

Notes:
See also “Camera 1, Filter F110W”.

Central wavelength: 1.1013 µm
Mean wavelength: 1.1003 µm
Peak wavelength: 1.1295 µm
Wavelength range: 1.0-1.2 µm
FWHM: 0.1995 µm
Maximum throughput: 10.46%
Pixel fraction: 0.108

Figure A1.9: NIC1, F110M Throughput

Figure A1.10: NIC1, F110M Sensitivity Curves
**Camera 1, Filter F110W**

**Figure A1.11: NIC1, F110W Throughput**

**Notes:**
See also “Camera 2, Filter F110W” and “Camera 3, Filter F110W”.

- Central wavelength: 1.0985 μm
- Mean wavelength: 1.1022 μm
- Peak wavelength: 1.2760 μm
- Wavelength range: 0.8-1.35 μm
- FWHM: 0.5920 μm
- Maximum throughput: 13.37%
- Pixel fraction: 0.113

**Figure A1.12: NIC1, F110W Sensitivity Curves**

Extended Source in 1 pixel Aperture    Point Source in 0.5” Radius Aperture

Saturated

S/N = 10

S/N = 3

---

Best case dark current

Worst case dark current
Camera 1, Filter F113N

Figure A1.13: NIC1, F113N Throughput

Notes:
[He I] continuum.
See also “Camera 3, Filter F113N”.

Central wavelength: 1.1297 µm
Mean wavelength: 1.1298 µm
Peak wavelength: 1.1312 µm
Wavelength range: 1%
FWHM: 0.0110 µm
Maximum throughput: 9.52%
Pixel fraction: 0.102

Figure A1.14: NIC1, F113N Sensitivity Curves

Extended Source in 1 pixel Aperture  Point Source in 0.5" Radius Aperture

S/N = 10
Saturated

S/N = 3

Best case dark current
Worst case dark current

S/N = 10
S/N = 3

Best case dark current
Worst case dark current
Camera 1, Filter F140W

Figure A1.15: NIC1, F140W Throughput

Central wavelength: 1.3973 µm
Mean wavelength: 1.3993 µm
Peak wavelength: 1.2240 µm
Wavelength range: 0.8-1.8 µm
FWHM: 0.7965 µm
Maximum throughput: 20.76%
Pixel fraction: 0.0766

Figure A1.16: NIC1, F140W Sensitivity Curves

- Best case dark current
- Worst case dark current

S/N = 3
S/N = 10
Saturated
Camera 1, Filter F145M

Figure A1.17: NIC1, F145M Throughput

Notes:
H₂O band.

Central wavelength: 1.4513 µm
Mean wavelength: 1.4524 µm
Peak wavelength: 1.5100 µm
Wavelength range: 1.35-1.55 µm
FWHM: 0.1965 µm
Maximum throughput: 16.35%
Pixel fraction: 0.0640

Figure A1.18: NIC1, F145M Sensitivity Curves

Best case dark current
Worst case dark current
Saturated
S/N = 3
S/N = 10

Best case dark current
Worst case dark current
Camera 1, Filter F160W

Notes:
Minimum background.
See also “Camera 2, Filter F160W” and “Camera 3, Filter F160W”.

Central wavelength: 1.5960 µm
Mean wavelength: 1.5947 µm
Peak wavelength: 1.5830 µm
Wavelength range: 1.35-1.75 µm
FWHM: 0.4000 µm
Maximum throughput: 20.91%
Pixel fraction: 0.0562

Figure A1.20: NIC1, F160W Sensitivity Curves

- Best case dark current
- Worst case dark current
S/N = 3
S/N = 10
Saturated
Camera 1, Filter F164N

Notes:
[Fe II] line.
See also “Camera 3, Filter F164N”.

Central wavelength: 1.6353 $\mu$m
Mean wavelength: 1.6354 $\mu$m
Peak wavelength: 1.6378 $\mu$m
Wavelength range: 1%
FWHM: 0.0166 $\mu$m
Maximum throughput: 17.96%
Pixel fraction: 0.0534
Camera 1, Filter F165M

Notes:
H₂O continuum.
See also “Camera 2, Filter F165M”.

Central wavelength: 1.6438 μm
Mean wavelength: 1.6446 μm
Peak wavelength: 1.5735 μm
Wavelength range: 1.55-1.75 μm
FWHM: 0.1985 μm
Maximum throughput: 20.44%
Pixel fraction: 0.0521
Camera 1, Filter F166N

Notes:
[Fe II] continuum.
See also “Camera 3, Filter F166N”.

- Central wavelength: 1.6606 µm
- Mean wavelength: 1.6606 µm
- Peak wavelength: 1.6622 µm
- Wavelength range: 1% µm
- FWHM: 0.0168 µm
- Maximum throughput: 18.27%
  - Pixel fraction: 0.0505
Camera 1, Filter F170M

Figure A1.27: NIC1, F170M Throughput

Notes:
See also “Camera 2, Filter F171M”.

Central wavelength: 1.7025 µm
Mean wavelength: 1.7032 µm
Peak wavelength: 1.6330 µm
Wavelength range: 1.6-1.8 µm
FWHM: 0.2030 µm
Maximum throughput: 21.08%
Pixel fraction: 0.0481

Figure A1.28: NIC1, F170M Sensitivity Curves
Camera 1, Filter F187N

Notes:
Paschen $\alpha$.
See also “Camera 2, Filter F187N” and “Camera 3, Filter F187N”.

Central wavelength: 1.875 µm
Mean wavelength: 1.8748 µm
Peak wavelength: 1.8756 µm
Wavelength range: 1%
FWHM: 0.0188 µm
Maximum throughput: 20.60%
Pixel fraction: 0.0411
Notes:
Paschen $\alpha$ continuum.
See also “Camera 2, Filter F190N” and “Camera 3, Filter F190N”.

Central wavelength: 1.8987 $\mu$m
Mean wavelength: 1.8986 $\mu$m
Peak wavelength: 1.8942 $\mu$m
Wavelength range: 1%
FWHM: 0.0174 $\mu$m
Maximum throughput: 21.08%
Pixel fraction: 0.0401
Camera 1, Polarizer POL0S

Figure A1.33: NIC1, POL0S Throughput

Central wavelength: 1.0450 μm
Mean wavelength: 1.0384 μm
Peak wavelength: 1.0245 μm
Wavelength range: 0.8-1.3
FWHM: 0.4750 μm
Maximum throughput: 4.95%
Pixel fraction: 0.048

Figure A1.34: NIC1, POL0S Sensitivity Curves

S/N = 3
S/N = 10

- Best case dark current
- Worst case dark current
Camera 2, Filter F110W

Notes:
See also “Camera 1, Filter F110W” and “Camera 3, Filter F110W”.

Central wavelength: 1.0998 µm
Mean wavelength: 1.1035 µm
Peak wavelength: 1.2035 µm
Wavelength range: 0.8-1.4 µm
FWHM: 0.5915 µm
Maximum throughput: 16.39%
Pixel fraction: 0.288
Camera 2, Filter F160W

Figure A1.37: NIC2, F160W Throughput

Notes:
Minimum background.
See also “Camera 1, Filter F160W” and “Camera 3, Filter F160W”.

- Central wavelength: 1.5940 µm
- Mean wavelength: 1.5931 µm
- Peak wavelength: 1.5820 µm
- Wavelength range: 1.4-1.8 µm
- FWHM: 0.4030 µm
- Maximum throughput: 24.02%
- Pixel fraction: 0.159

Figure A1.38: NIC2, F160W Sensitivity Curves

Best case dark current
Worst case dark current
Saturated
S/N = 3
S/N = 10
S/N = 10
S/N = 3
Camera 2, Filter F165M

Notes:
Planetary continuum.
See also “Camera 1, Filter F165M”.

Central wavelength: 1.6463 µm
Mean wavelength: 1.6473 µm
Peak wavelength: 1.5540 µm
Wavelength range: 1.55-1.75 µm
FWHM: 0.1985 µm
Maximum throughput: 24.07%
Pixel fraction: 0.149

Figure A1.39: NIC2, F165M Throughput

Figure A1.40: NIC2, F165M Sensitivity Curves
Camera 2, Filter F171M

Notes:
HCO$_2$ and C$_2$ continuum.

Central wavelength: 1.7206 $\mu$m
Mean wavelength: 1.7209 $\mu$m
Peak wavelength: 1.7224 $\mu$m
Wavelength range: 1.68-1.75 $\mu$m
FWHM: 0.0712 $\mu$m
Maximum throughput: 23.19%
Pixel fraction: 0.138

Figure A1.41: NIC2, F171M Throughput

Figure A1.42: NIC2, F171M Sensitivity Curves
Camera 2, Filter F180M

Notes:
HCO$_2$ and C$_2$.
Thermal background important.

Central wavelength: 1.7968 $\mu$m
Mean wavelength: 1.7971 $\mu$m
Peak wavelength: 1.8108 $\mu$m
Wavelength range: 1.765-1.83 $\mu$m
FWHM: 0.0684 $\mu$m
Maximum throughput: 23.68%
Pixel fraction: 0.128

Figure A1.43: NIC2, F180M Throughput

Figure A1.44: NIC2, F180M Sensitivity Curves

Extended Source in 1 pixel Aperture
Point Source in 0.5" Radius Aperture

Saturated

S/N = 10

S/N = 3

Best case dark current
Worst case dark current
Camera 2, Filter F187N

Notes:
Paschen $\alpha$.
See also “Camera 1, Filter F187N” and “Camera 3, Filter F187N”.

Central wavelength: 1.8740 $\mu$m
Mean wavelength: 1.8738 $\mu$m
Peak wavelength: 1.8746 $\mu$m
Wavelength range: 1%
FWHM: 0.0192 $\mu$m
Maximum throughput: 23.33%
Pixel fraction: 0.119

Figure A1.46: NIC2, F187N Sensitivity Curves

Extended Source in 1 pixel Aperture
Point Source in 0.5" Radius Aperture

- Best case dark current
- Worst case dark current

S/N = 3
S/N = 10
Saturated
Camera 2, Filter F187W

Figure A1.47: NIC2, F187W Throughput

Notes:
Thermal Background important.

Central wavelength: 1.8722 µm
Mean wavelength: 1.8708 µm
Peak wavelength: 1.8930 µm
Wavelength range: 1.75-2.35 µm
FWHM: 0.2436 µm
Maximum throughput: 22.84%
Pixel fraction: 0.117

Figure A1.48: NIC2, F187W Sensitivity Curves

Best case dark current
Worst case dark current......Saturated
S/N = 3
S/N = 10

Extended Source in 1 pixel Aperture
Point Source in 0.5” Radius Aperture
Camera 2, Filter F190N

Figure A1.49: NIC2, F190N Throughput

Notes:
Paschen α continuum.
See also “Camera 1, Filter F190N” and “Camera 3, Filter F190N”.

Central wavelength: 1.9005 µm
Mean wavelength: 1.9003 µm
Peak wavelength: 1.9004 µm
Wavelength range: 1%
FWHM: 0.0174 µm
Maximum throughput: 24.37%
Pixel fraction: 0.116

Figure A1.50: NIC2, F190N Sensitivity Curves

Best case dark current
Worst case dark current
S/N = 3
S/N = 10
Saturated

---
Best case dark current
Worst case dark current

---

S/N = 3
S/N = 10
Saturated
Camera 2, Filter F204M

Figure A1.51: NIC2, F204M Throughput

Notes:
Methane band.
Thermal background important.

Central wavelength: $2.0313 \, \mu m$
Mean wavelength: $2.0327 \, \mu m$
Peak wavelength: $2.0342 \, \mu m$
Wavelength range: $1.99$-$2.09 \, \mu m$
FWHM: $0.105 \, \mu m$
Maximum throughput: $26.90\%$
Pixel fraction: $0.104$

Figure A1.52: NIC2, F204M Sensitivity Curves

Saturated
S/N = 10
S/N = 3

Best case dark current
Worst case dark current
Camera 2, Filter F205W

Figure A1.53: NIC2, F205W Throughput

Notes:
Thermal background important.

Central wavelength: 2.0428 μm
Mean wavelength: 2.0406 μm
Peak wavelength: 1.9560 μm
Wavelength range: 1.75-2.35 μm
FWHM: 0.6125 μm
Maximum throughput: 34.56%
Pixel fraction: 0.107

Figure A1.54: NIC2, F205W Sensitivity Curves

Extended Source in 1 pixel Aperture
Point Source in 0.5” Radius Aperture

Best case dark current
Worst case dark current
Saturated

S/N = 3
S/N = 10
Camera 2, Filter F207M

Figure A1.55: NIC2, F207M Throughput

Notes:
Thermal background important.

Central wavelength: 2.0827 µm
Mean wavelength: 2.0786 µm
Peak wavelength: 2.0252 µm
Wavelength range: 2.0-2.15 µm
FWHM: 0.1522 µm
Maximum throughput: 25.46%
Pixel fraction: 0.0976

Figure A1.56: NIC2, F207M Sensitivity Curves

Best case dark current
Worst case dark current
S/N = 3
S/N = 10
Saturated

---

Best case dark current
Worst case dark current
S/N = 3
S/N = 10
Saturated

---
Camera 2, Filter F212N

Figure A1.57: NIC2, F212N Throughput

Notes:
H₂ line.
Thermal background important.
See also “Camera 3, Filter F212N”.

Central wavelength: 2.1211 µm
Mean wavelength: 2.1213 µm
Peak wavelength: 2.1228 µm
Wavelength range: 1%
FWHM: 0.0206 µm
Maximum throughput: 26.03%
Pixel fraction: 0.0953

Figure A1.58: NIC2, F212N Sensitivity Curves

Extended Source in 1 pixel Aperture  Point Source in 0.5" Radius Aperture

Saturated

S/N = 10

S/N = 3

Best case dark current
Worst case dark current
Camera 2, Filter F215N

Figure A1.59: NIC2, F215N Throughput

Notes:
N\textsubscript{2} + Brackett γ continuum.
Thermal background important.

Central wavelength: 2.1488 \mu m
Mean wavelength: 2.1487 \mu m
Peak wavelength: 2.1562 \mu m
Wavelength range: 1% \mu m
FWHM: 0.0200 \mu m
Maximum throughput: 25.40%
Pixel fraction: 0.0933

Figure A1.60: NIC2, F215N Sensitivity Curves

Best case dark current
Worst case dark current
S/N = 3
S/N = 10
Saturated

---

Best case dark current
Worst case dark current
Camera 2, Filter F216N

Figure A1.61: NIC2, F216N Throughput

Notes:
Brackett γ line.
Thermal background important.

Central wavelength: 2.1642 µm
Mean wavelength: 2.1641 µm
Peak wavelength: 2.1668 µm
Wavelength range: 1%
FWHM: 0.0208 µm
Maximum throughput: 26.35%
Pixel fraction: 0.0915

Figure A1.62: NIC2, F216N Sensitivity Curves

Extended Source in 1 pixel Aperture  Point Source in 0.5" Radius Aperture

S/N = 3
S/N = 10

Best case dark current
Worst case dark current
Saturated

S/N = 3
S/N = 10

Best case dark current
Worst case dark current
Saturated
Camera 2, Filter F222M

Figure A1.63: NIC2, F222M Throughput

Notes:
CO continuum.
Thermal background important.
See also “Camera 3, Filter F222M”.

Central wavelength: 2.2160 µm
Mean wavelength: 2.2164 µm
Peak wavelength: 2.1804 µm
Wavelength range: 2.15-2.3 µm
FWHM: 0.1432 µm
Maximum throughput: 26.71%
Pixel fraction: 0.0881

Figure A1.64: NIC2, F222M Sensitivity Curves

Best case dark current
Worst case dark current

S/N = 3
S/N = 10

Saturated

Best case dark current
Worst case dark current
Camera 2, Filter F237M

Notes:
CO.
Thermal background important.
See also “Camera 3, Filter F240M”.

Central wavelength: 2.3677 µm
Mean wavelength: 2.3694 µm
Peak wavelength: 2.3852 µm
Wavelength range: 2.3-2.45 µm
FWHM: 0.1546 µm
Maximum throughput: 32.85%
Pixel fraction: 0.0797
Camera 2, Polarizer POL0L

Figure A1.67: NIC2, POL0L Throughput

Central wavelength: 1.9945 \(\mu\)m
Mean wavelength: 1.9946 \(\mu\)m
Peak wavelength: 1.9100 \(\mu\)m
Wavelength range: 1.9-2.1 \(\mu\)m
FWHM: 0.2025 \(\mu\)m
Maximum throughput: 14.79%
Pixel fraction: 0.33

Figure A1.68: NIC2, POL0L Sensitivity Curves

Extended Source in 1 pixel Aperture
Point Source in 0.5" Radius Aperture

- Best case dark current
- Worst case dark current

S/N = 3
S/N = 10
S/N = 10
S/N = 3
Camera 3, Filter F108N

Notes:
[He I] line.
See also “Camera 1, Filter F108N”.

Central wavelength: 1.0800 µm
Mean wavelength: 1.0799 µm
Peak wavelength: 1.0776 µm
Wavelength range: 1%
FWHM: 0.0096 µm
Maximum throughput: 8.91%
Pixel fraction: 0.582
Camera 3, Filter F110W

Notes:
See also “Camera 1, Filter F110W” and “Camera 2, Filter F110W”.

Central wavelength: 1.0998 µm
Mean wavelength: 1.1035 µm
Peak wavelength: 1.2035 µm
Wavelength range: 0.8-1.4 µm
FWHM: 0.5915 µm
Maximum throughput: 14.36%
Pixel fraction: 0.590
Camera 3, Filter F113N

Notes:
[He I] continuum.
See also “Camera 1, Filter F113N”.

Central wavelength: 1.1283 µm
Mean wavelength: 1.1283 µm
Peak wavelength: 1.1316 µm
Wavelength range: 1%
FWHM: 0.0110 µm
Maximum throughput: 10.62%
Pixel fraction: 0.579

Figure A1.73: NIC3, F113N Throughput

Figure A1.74: NIC3, F113N Sensitivity Curves
Camera 3, Filter F150W

Figure A1.75: NIC3, F150W Throughput

Notes:
Grism B continuum.
Thermal background important.

Central wavelength: 1.5035 µm
Mean wavelength: 1.5069 µm
Peak wavelength: 1.6355 µm
Wavelength range: 1.1-1.9 µm
FWHM: 0.8020 µm
Maximum throughput: 24.20%
Pixel fraction: 0.534

Figure A1.76: NIC3, F150W Sensitivity Curves

Extended Source in 1 pixel Aperture
Best case dark current
Worst case dark current

Point Source in 1.0" Radius Aperture
Best case dark current
Worst case dark current

Saturated
S/N = 3
S/N = 10
S/N = 3
S/N = 10
Camera 3, Filter F160W

Figure A1.77: NIC3, F160W Throughput

Notes:
Minimum background.
See also “Camera 1, Filter F160W” and “Camera 2, Filter F160W”.

Central wavelength: 1.5940 µm
Mean wavelength: 1.5931 µm
Peak wavelength: 1.5820 µm
Wavelength range: 1.4-1.8 µm
FWHM: 0.4030 µm
Maximum throughput: 23.15%
Pixel fraction: 0.524

Figure A1.78: NIC3, F160W Sensitivity Curves

Extended Source in 1 pixel Aperture

Point Source in 1.0” Radius Aperture

Best case dark current
Worst case dark current
S/N = 3
S/N = 10
Saturated

Best case dark current
Worst case dark current
S/N = 3
S/N = 10
Saturated
Camera 3, Filter F164N

Notes:
[Fe II] line.
See also “Camera 1, Filter F164N”.

Central wavelength: 1.646 µm
Mean wavelength: 1.6460 µm
Peak wavelength: 1.6476 µm
Wavelength range: 1%
FWHM: 0.0170 µm
Maximum throughput: 19.77%
Pixel fraction: 0.523

Figure A1.79: NIC3, F164N Throughput

Figure A1.80: NIC3, F164N Sensitivity Curves

Extended Source in 1 pixel Aperture

Point Source in 1.0” Radius Aperture

Saturated

S/N = 10

S/N = 3

Best case dark current
Worst case dark current

Saturated

S/N = 10

S/N = 3

Best case dark current
Worst case dark current
Camera 3, Filter F166N

Notes:
[Fe II] continuum.
See also “Camera 1, Filter F166N”.

Central wavelength: 1.6582 µm
Mean wavelength: 1.6582 µm
Peak wavelength: 1.6602 µm
Wavelength range: 1%
FWHM: 0.0164 µm
Maximum throughput: 19.99%
Pixel fraction: 0.513
Camera 3, Filter F175W

Notes:
Thermal background important.

Central wavelength: 1.7530 µm
Mean wavelength: 1.7508 µm
Peak wavelength: 1.9070 µm
Wavelength range: 1.2-2.3 µm
FWHM: 1.0940 µm
Maximum throughput: 33.94%
Pixel fraction: 0.486

Figure A1.83: NIC3, F175W Throughput

Figure A1.84: NIC3, F175W Sensitivity Curves

Best case dark current
Worst case dark current
Saturated
S/N = 3
S/N = 10
Camera 3, Filter F187N

Notes:
Paschen $\alpha$ line.
See also “Camera 1, Filter F187N” and “Camera 2, Filter F187N”.

Central wavelength: 1.8740 $\mu$m
Mean wavelength: 1.8738 $\mu$m
Peak wavelength: 1.8746 $\mu$m
Wavelength range: 1%
FWHM: 0.0192 $\mu$m
Maximum throughput: 22.64%
Pixel fraction: 0.471

Figure A1.86: NIC3, F187N Sensitivity Curves

Extended Source in 1 pixel Aperture

Point Source in 1.0° Radius Aperture

Saturated

$S/N = 10$

$S/N = 3$

— Best case dark current

— Worst case dark current
Camera 3, Filter F190N

Notes:
Paschen $\alpha$ continuum.
See also “Camera 1, Filter F190N” and “Camera 2, Filter F190N”.

Central wavelength: 1.9005 $\mu$m
Mean wavelength: 1.9003 $\mu$m
Peak wavelength: 1.9004 $\mu$m
Wavelength range: 1%
FWHM: 0.0174 $\mu$m
Maximum throughput: 24.41%
Pixel fraction: 0.466
Camera 3, Filter F196N

Notes:
[Si VI].
Thermal background important.

Central wavelength: 1.9641 µm
Mean wavelength: 1.9639 µm
Peak wavelength: 1.9698 µm
Wavelength range: 1%
FWHM: 0.0186 µm
Maximum throughput: 25.33%
Pixel fraction: 0.450
Camera 3, Filter F200N

Figure A1.91: NIC3, F200N Throughput

Notes:
[Si VI] continuum.
Thermal background important.

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Figure A1.92: NIC3, F200N Sensitivity Curves

- Extended Source in 1 pixel Aperture
- Point Source in 1.0° Radius Aperture
- Best case dark current
- Worst case dark current
- S/N = 3
- S/N = 10
- Saturated
Camera 3, Filter F212N

Figure A1.93: NIC3, F212N Throughput

Notes:

H$_2$ line.
Thermal background important.
See also “Camera 2, Filter F212N”.

Central wavelength: 2.1211 µm
Mean wavelength: 2.1213 µm
Peak wavelength: 2.1228 µm
Wavelength range: 1%
FWHM: 0.0206 µm
Maximum throughput: 25.70%
Pixel fraction: 0.418

Figure A1.94: NIC3, F212N Sensitivity Curves

Extended Source in 1 pixel Aperture  Point Source in 1.0" Radius Aperture

--- Best case dark current
----- Worst case dark current

S/N = 3
S/N = 10
S/N = 10
Camera 3, Filter F215N

Notes:
H₂ continuum.
Thermal background important.
See also “Camera 2, Filter F215N”.

Central wavelength: 2.1488 µm
Mean wavelength: 2.1487 µm
Peak wavelength: 2.1562 µm
Wavelength range: 1%
FWHM: 0.0200 µm
Maximum throughput: 25.10%
Pixel fraction: 0.413

Figure A1.95: NIC3, F215N Throughput

Figure A1.96: NIC3, F215N Sensitivity Curves
**Camera 3, Filter F222M**

*Figure A1.97: NIC3, F222M Throughput*

**Notes:**
- CO continuum.
- Thermal background important.
- See also “Camera 2, Filter F222M”.

- Central wavelength: 2.216 µm
- Mean wavelength: 2.216 µm
- Peak wavelength: 2.18 µm
- Wavelength range: 2.15-2.3 µm
- FWHM: 0.1432 µm
- Maximum throughput: 26.52%
- Pixel fraction: 0.397

*Figure A1.98: NIC3, F222M Sensitivity Curves*

- Extended Source in 1 pixel Aperture
- Point Source in 1.0° Radius Aperture

- Saturated
- S/N = 10
- S/N = 3

---

**Best case dark current**

**Worst case dark current**
Camera 3, Filter F240M

Notes:
CO band.
Thermal background important.

Central wavelength: 2.3978 μm
Mean wavelength: 2.3977 μm
Peak wavelength: 2.3155 μm
Wavelength range: 2.3-2.5 μm
FWHM: 0.1975 μm
Maximum throughput: 32.78%
Pixel fraction: 0.363