Signal/Noise Estimates for NICMOS fall-2002 Data

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The purpose of this note is to verify the Rachel's S/N estimates based on the last fall's data.

We do not have the final references for these data. Therefore, we adopted a crude scheme with unknown biases. The scheme consists of PSF fitting the SN in the 3x3 pixel region, with background function approximated as constant. We have estimated S/N ratio in two ways:

1) trying to mimic Rachel's approach of summing the signal and noise values in the area corresponding to 4 square pixels (2nd column in the table);
2) dividing the signal returned from the fit by the error value (3rd column in the table). Strictly speaking, this is not signal-to-noise ratio, but this is closely related to the treatment of S/N in Rob's software.

The results are provided on the per-orbit basis. Since our data are half-orbit exposures, we multiplied them by $\sqrt{2}$ to obtain the numbers listed in the table.

We also report the signal-to-background ratio (4th column), where the SN signal and galaxy background are summed over the 4 square pixels.

SN	S/N per 4 pixels	S/Err(exp)	S/B
SuF02-060	44.5	43.7	2.5
SuF02-065	7.1	10.7	6.2
SuF02-012(+)	14.5	36	3.4

Notes:
(+) These images were heavily polluted by the CRs due to the South Atlantic Anomaly.

There is a big scatter in the S/N values. The signal-to-noise of about 17 near maximum quoted at the meetinf of October 24 does not seem unreasonable, given the data.