

ACS Preliminary Sensitivity Estimates

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Preliminary sensitivity estimates for the WFC and HRC in each bandpass are presented here. Calculations are based on images taken of the HST spectrophotometric standard star GD71, a white dwarf, that executed during the SMOV program. The percentage difference of the on-orbit measured values to the models is listed in the tables. The Predicted values were found using the ETC, which queries the SYNPHOT throughput tables for its calculations. All aperture photometry was done in a 25x25 boxsize aperture, which includes ~95% of the star's flux, depending on filter. While the default box apertures in the ETC contain ~80% of a star's flux. Measured values are calculated from images that have been processed through the CALACS and PyDrizzle software. Super-dark and super-bias frames were created from data collected during the SMOV program and flat frames collected during the ground calibration program.

ACS is performing nominally and, within the uncertainties, the sensitivity is as expected. Sensitivity differences between the first on-orbit data and the SYNPHOT models can be of order 10%, due to uncertainties in the ground calibration system. There is, however, some indication that the CCD cameras are somewhat more sensitive in most visible bands. It should be noted that additional uncertainties are introduced by use of preliminary distortion correction coefficients, ground calibration flat fields and initial PSF models. After further analysis and updates numbers will be incorporated into the ETC and SYNPHOT tables.

TABLE 1. WFC - measured/predicted flux

filter mode	%	filter mode	%
WFC1/F435W	15.07	WFC2/F435W	17.17
WFC1/F475W	15.17	WFC2/F475W	15.69
WFC1/F502N	13.88	WFC2/F502N	14.64
WFC1/F550M	5.67	WFC2/F550M	7.54
WFC1/F555W	11.66	WFC2/F555W	13.43
WFC1/F606W	10.19	WFC2/F606W	12.14
WFC1/F625W	10.05	WFC2/F625W	12.16
WFC1/F658N	10.18	WFC2/F658N	11.80
WFC1/F660N	10.95	WFC2/F660N	13.37
WFC1/F775W	8.48	WFC2/F775W	11.16
WFC1/F814W	6.92	WFC2/F814W	9.56
WFRC1/F850LP	-6.79	WFRC2/F850LP	-2.60
WFC1/F892N	-0.47	WFC2/F892N	N/A

TABLE 2. HRC - measured/predicted flux

filter mode	%
HRC/F220W	3.53
HRC/F250W	-23.24
HRC/330W	-16.96
HRC/F344N	-20.14
HRC/F435W	-2.71
HRC/F475W	3.24
HRC/F502N	2.66
HRC/F550M	5.26
HRC/F555W	5.37
HRC/F606W	4.64
HRC/F625W	9.26
HRC/F658N	9.15
HRC/F660N	7.82
HRC/F775W	12.21
HRC/F814W	9.77
HRC/F850LP	-7.83
HRC/F892N	-1.46