Instrument Science Report - OTA

FOC UV THROUGHPUT
MONITORING TEST

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March 6, 1992

1 Introduction
The results of the Observatory Level Test #2827 to monitor the UV throughput of HST-FOC, together with results of earlier tests are reported here. The observations consist of imaging the star, BPM16274, through four different filters using the Faint Object Camera. The filters used were F120M, F140M, F170M and F210M. This test is conducted every six to eight weeks. Data taken through Feb. 17, 1992 is reported here.

2 Method of analysis
The raw data for all the observations studied here was first calibrated using the present version of CALFOC and all the current calibration files, in order to maintain consistency in flat fielding and geometric correction for all the images. Since all the stars did not appear in the same spot on the frame and some were off to the edge, the total number of counts in a rectangular box around the star center were determined. The box coordinates were $(x_0 - 110 : x_0 + 110, y_0 - 40 : y_0 + 110)$, where $(x_0, y_0)$ are the pixel coordinates of the star center. The background was estimated as the median value in 20 pixel
wide strips just outside the vertical edges of the box and the upper horizontal edge. The lower horizontal edge was not taken since this was absent in the most recent observation. This pointing error is under investigation. The total number of counts were estimated for each background value and the mean and standard deviation, $\sigma$, computed. The mean values were plotted together with the $3\sigma$ values as error bars (Figure 1). A non-linear least square fit was performed and the fits overplotted on the data in Figure 1.

3 Results

For the F140M filter there seems to be a very slight trend suggesting a decrease in UV throughput with time. However, for the other three filters the throughput seems fairly constant. The downward trend noted by Sparks (Instrument Science Report, FOC-050) of the earlier data is not maintained in the new tests.
OTA Instrument Science Report 08 3/6/92

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Abstract excerpted from the report:
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