SWP Aperture Area Analysis

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The aperture area for the SWLA has been re-determined as a result of an open action item from the June 1992 Three Agency meeting. This analysis finalizes my previous work (Garhart 1992) on the SWP aperture dimensions.

The relative (*i.e.*, uncalibrated) areas of the large aperture and a rectangle encompassing the aperture were measured using a photograph of the aperture (Figure 1) and a planimeter. By ratioing these two numbers, a correction factor was derived, which, when multiplied by the aperture length times the width, takes into account the rounding of the corners. The correction factor derived from this analysis was within two sigma of the original number derived by Panek (1982). An attempt was also made to try and reproduce Panek's figure for the ratio of the large to small aperture areas using the above technique. This method proved unsuccessful, so I simply used his number to provide the small aperture dimensions.

Table 1

Comparison of SWP Large Aperture Parameters

Dimension	Garhart	Panek
Ratio	0.93±0.01	0.91
LGAP Area ($arcsec^2$)	182.62±3.97	175.0±6.7
LGAP/SMAP Ratio		29.2±0.7
SMAP Area ($arcsec^2$)	6.25±0.20	5.99±0.27
SMAP Diameter ($arcsec$)	2.82±0.05	2.76±0.06

References

Garhart, M. P. 1992, NASA IUE Newsletter, No. 48, 88
Panek, R. 1982, NASA IUE Newsletter, No. 18, 68

Figure 1: Photograph of SWP Apertures