LSF for the LSA is only 19–51% broader in a Gaussian core than spectra from the SSA and the extended wings are absent. The LSF results are presented in *GHRS ISR* 063. The differential degradation of the LSF due to the LSA with respect to the LSF of the SSA was derived. A spectral line of a point source with an infinitesimal line width (delta function) measured with the SSA has an LSF with a full width at half maximum (FWHM) of 0.925 diodes. This is independent of wavelength and grating. Measurements of the differential LSF of the LSA were performed for the five wavelength/grating combinations listed in Table 38.1. Column 3 of this table gives the measured FWHM of the differential LSF. Adding this value in quadrature to the FWHM of the SSA LSF (=0.925 diodes) leads to the FWHM of the LSA LSF, given in column 4 of the table. Plots showing the differential LSFs are in *GHRS ISR* 063. No reliable measurements of the LSF for the G140L grating are available. It is very likely that the G140L LSF is similar to those of other gratings.

Table 38.1: GHRS Post-COSTAR Differential LSF

Grating	Wavelength (Å)	Differential LSF of the LSA (diodes)	Relative FWHM (LSA/SSA)
G160M	1360	0.60	1.10
G160M	1900	0.72	1.18
G200M	1900	0.60	1.10
ECH-B	1900	0.82	1.24
ECH-B	2680	0.60	1.10

Deconvolution of GHRS spectra was investigated after the spherical aberration was found in the primary mirror. With COSTAR, the need for deconvolution has become less pressing, however, for the best spectral resolution, it is possible to deconvolve LSA spectra to the level of SSA spectra. See, *The Restoration of HST Images and Spectra*, (proceedings of the HST Calibration Workshop at STScI), STScI, 1990. The STSDAS task, **lucy**, can be used to deconvolve GHRS spectra.