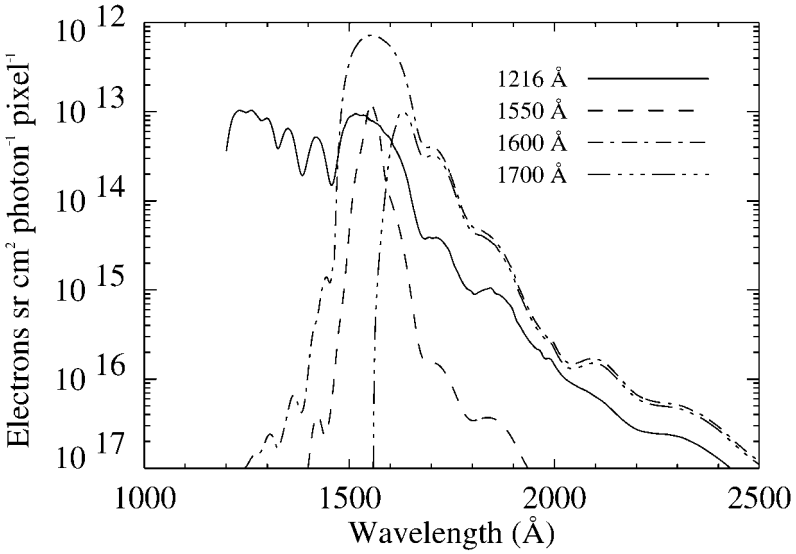

Figure 13. The combined response of the UV optics and CCD quantum efficiency in the TRACE instrument.

1 μm. The transmission of the UV entrance filter decreases from 1700 to 5000 Å at a rate similar to the increase in the solar spectrum. Hence, TRACE WL images show solar granulation, sunspots and faculae similar to visible images in the blue. Their UV component is not negligible, however; emission features are seen in modest flares on the disk and occasionally even above the limb.

2.4. On-orbit characterization

Efforts to characterize the on-orbit instrument performance have been ongoing since the initial commissioning phase. Some specifics of that work-in-progress follow.

2.4.1. *CCD Flat Field and Lumogen Performance*

On-orbit flat fields of the TRACE CCD and optics in WL and 1700 Å wavelengths, using the Kuhn–Lin flat-field algorithm (Kuhn, Lin, and Loranz, 1991) have been generated. The Kuhn–Lin algorithm requires taking a number of images at slightly shifted locations on the CCD with the image out of focus to reduce contrast. This shifting is done with the secondary mirror PZTs, which shift the images up to $\pm$ 15 arc sec. This method works well for the WL channel, which is of relatively low contrast (Figure 14). For the 1700 Å flat fields, offset pointing by the spacecraft is used to increase the shifts to $\sim$ 80 arc sec.

The WL flat field, which has been normalized to a value of 1.0, is quite flat and of good quality, in the sense that it corrects WL images to high accuracy. A typical line through the flat field (cf., Figure 14) shows variations at the $\pm$1.0%