Window Reflections
ML8300

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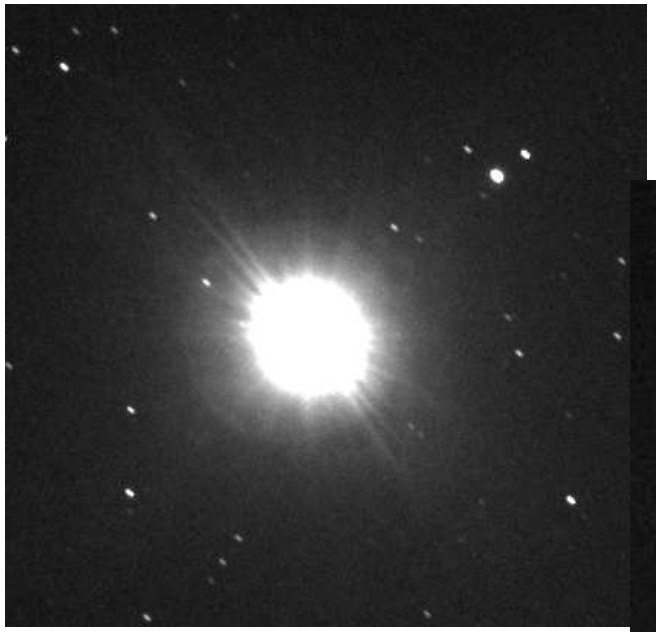
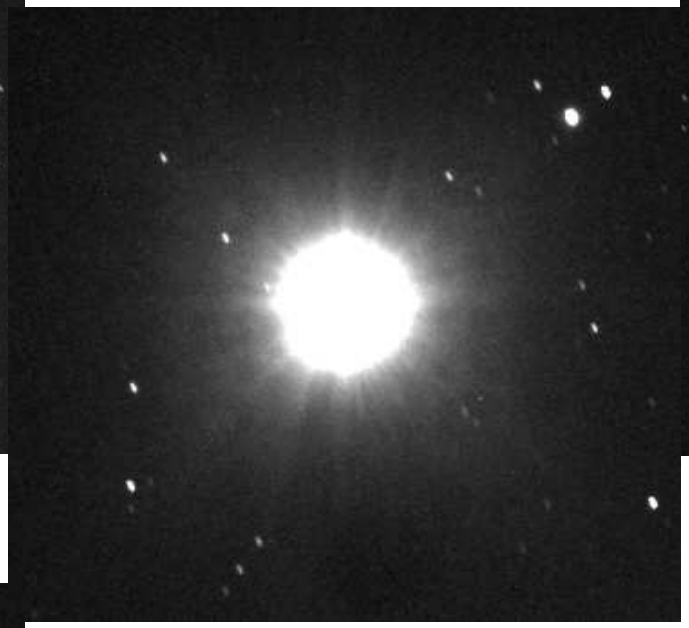
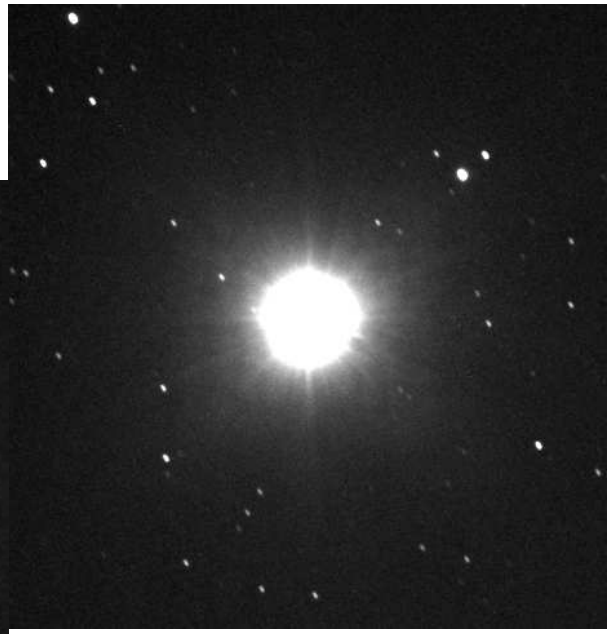


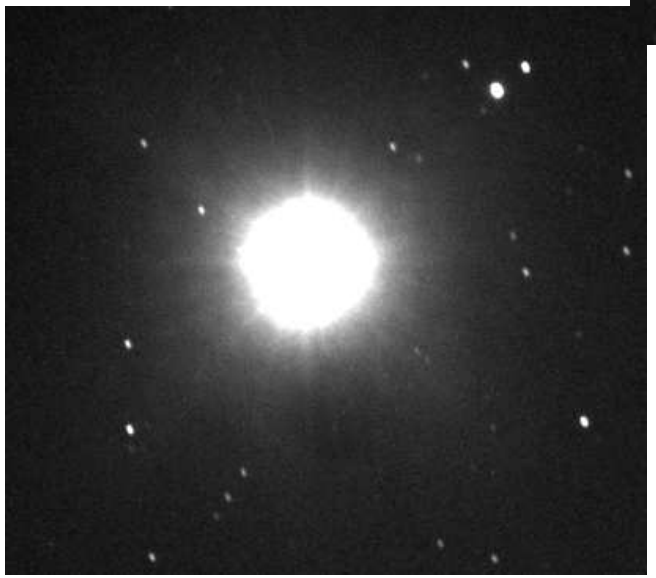
“E” Window



No Window

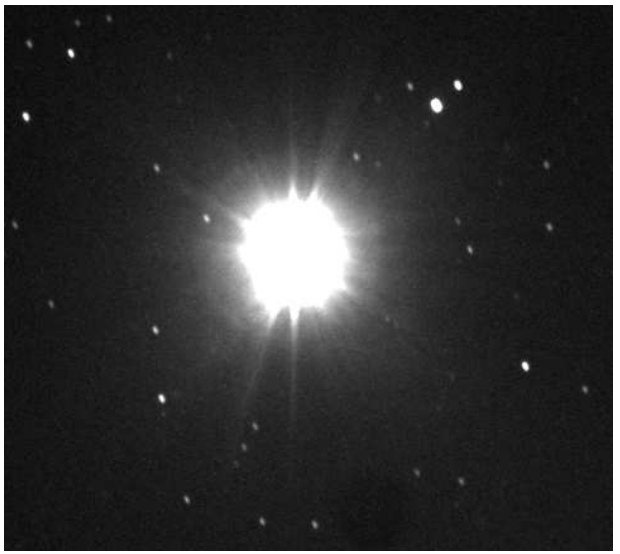


“J” Window



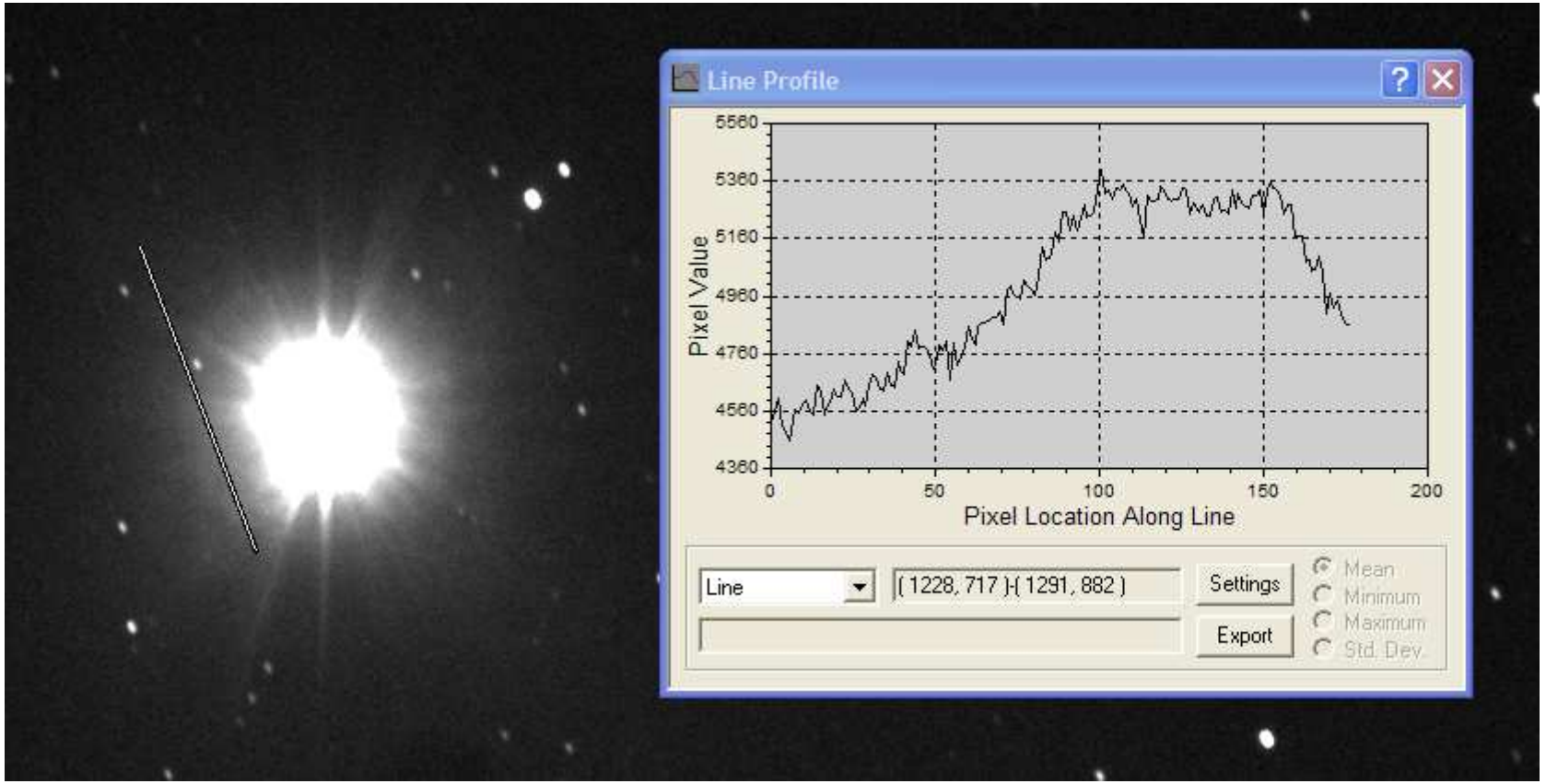
“K” Window

Alnitak:
Median combine of
3 x 90 seconds unfiltered
FSQ106 / ML8300

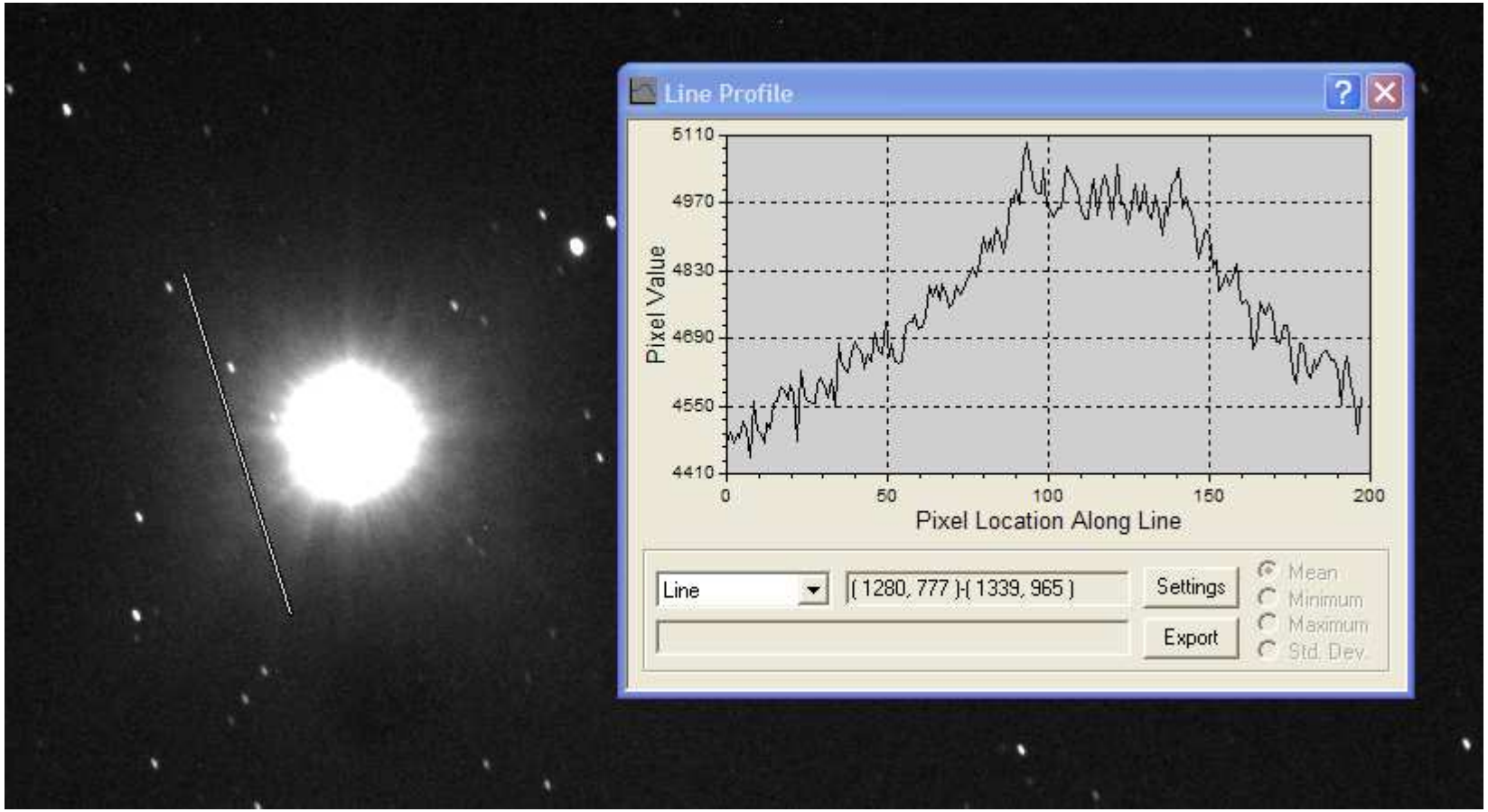


Stock Window

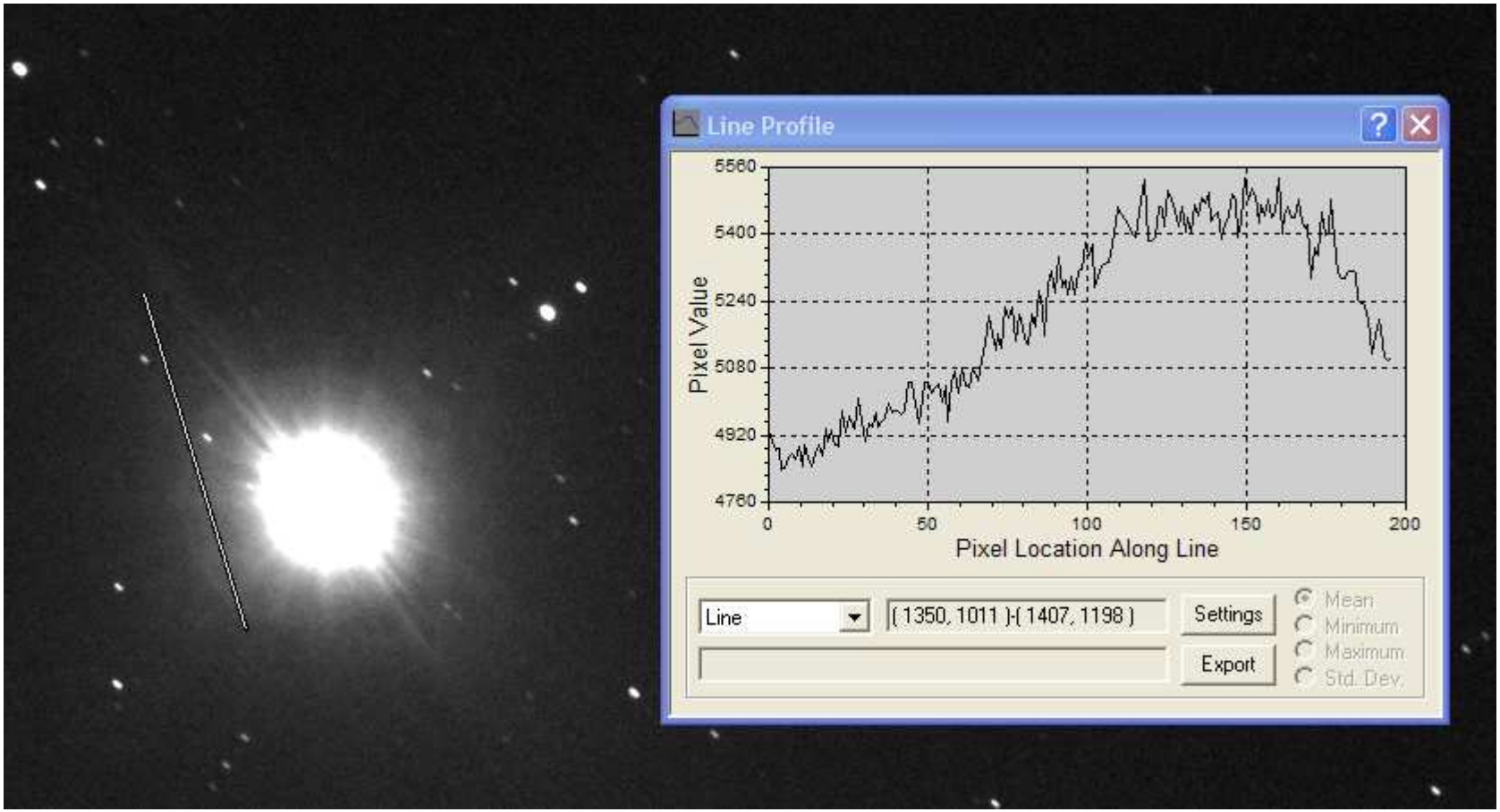
Line Profile: Stock Window



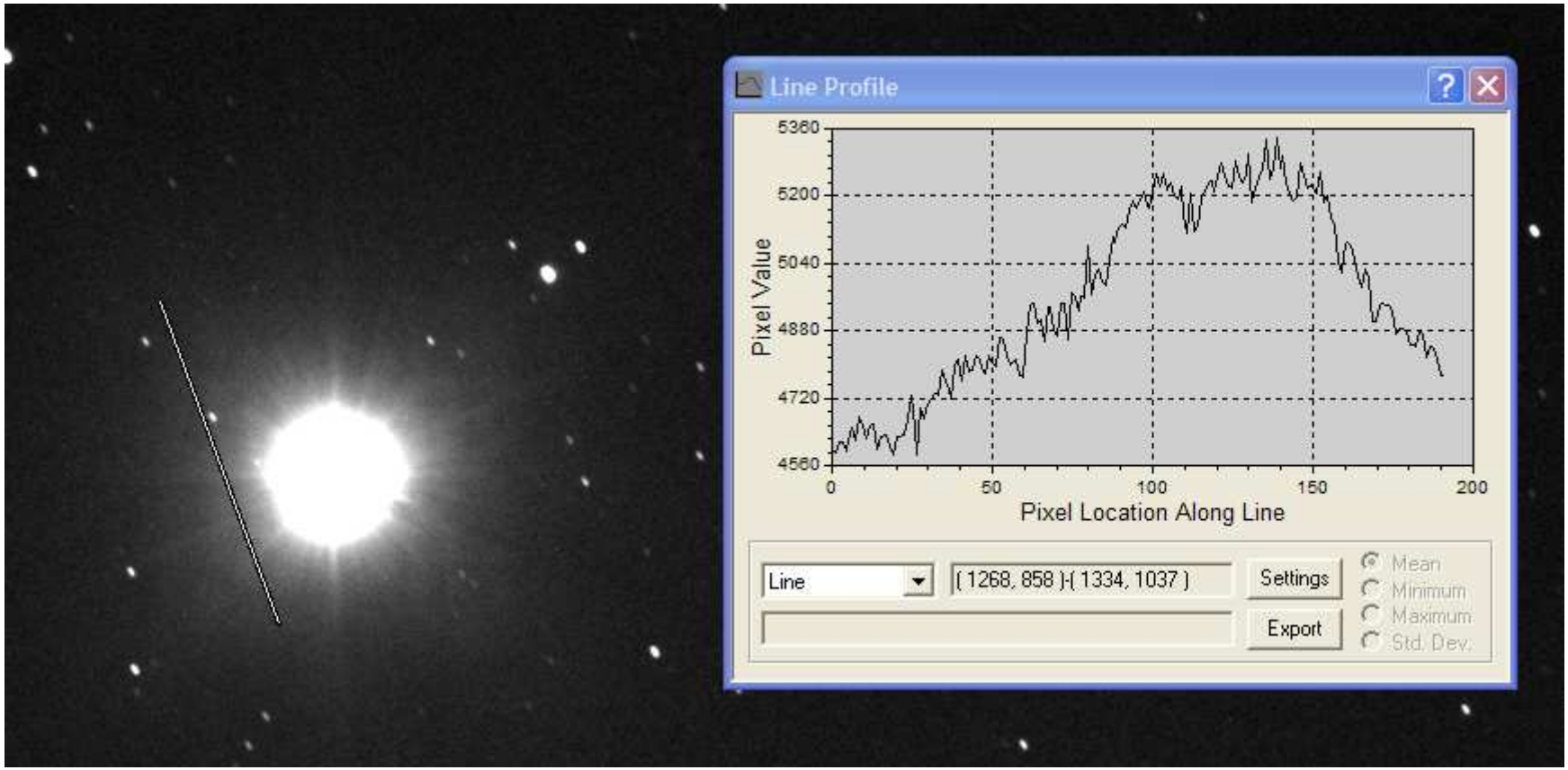
Line Profile: No Window



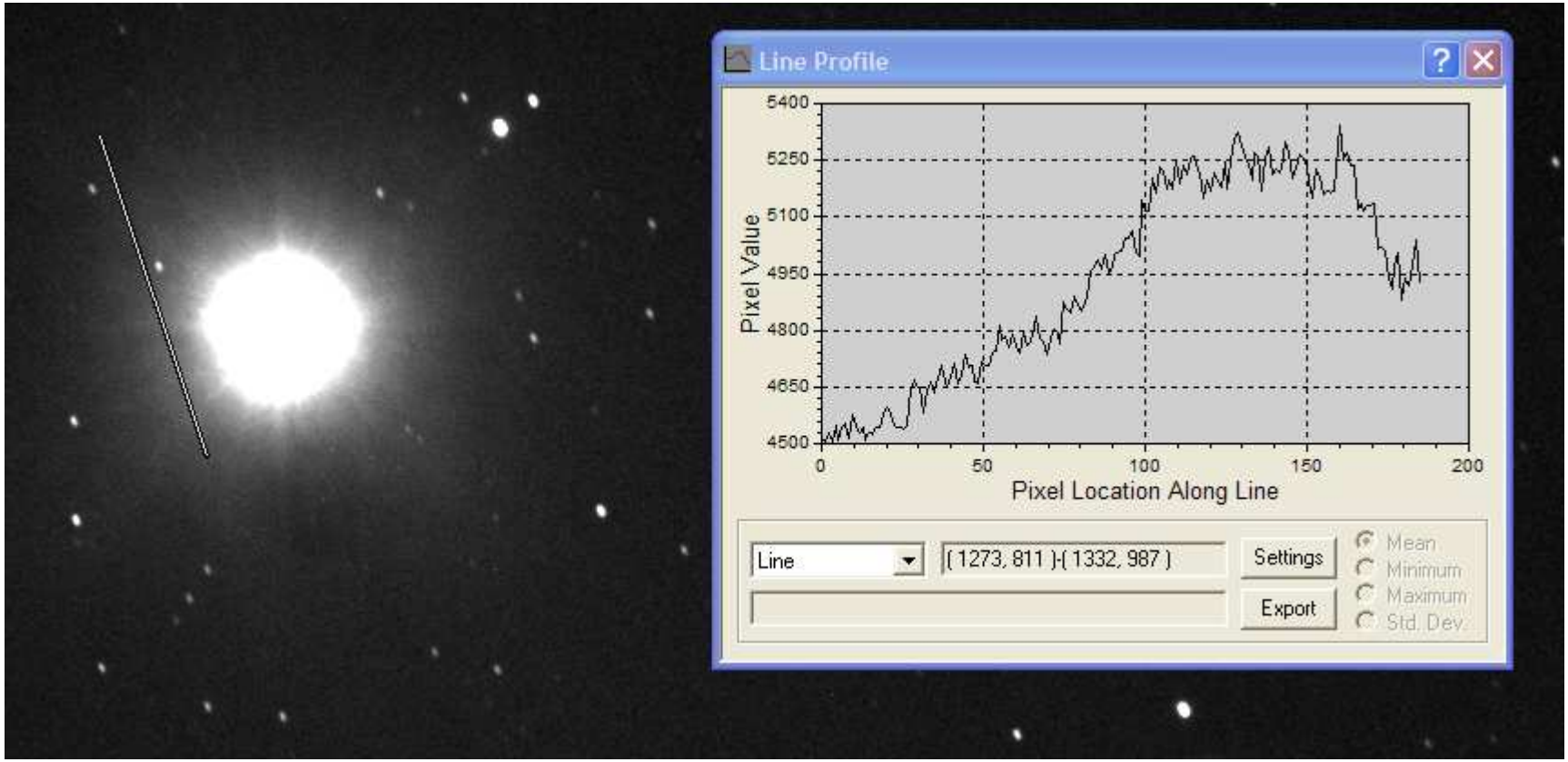
Line Profile: “E” Window



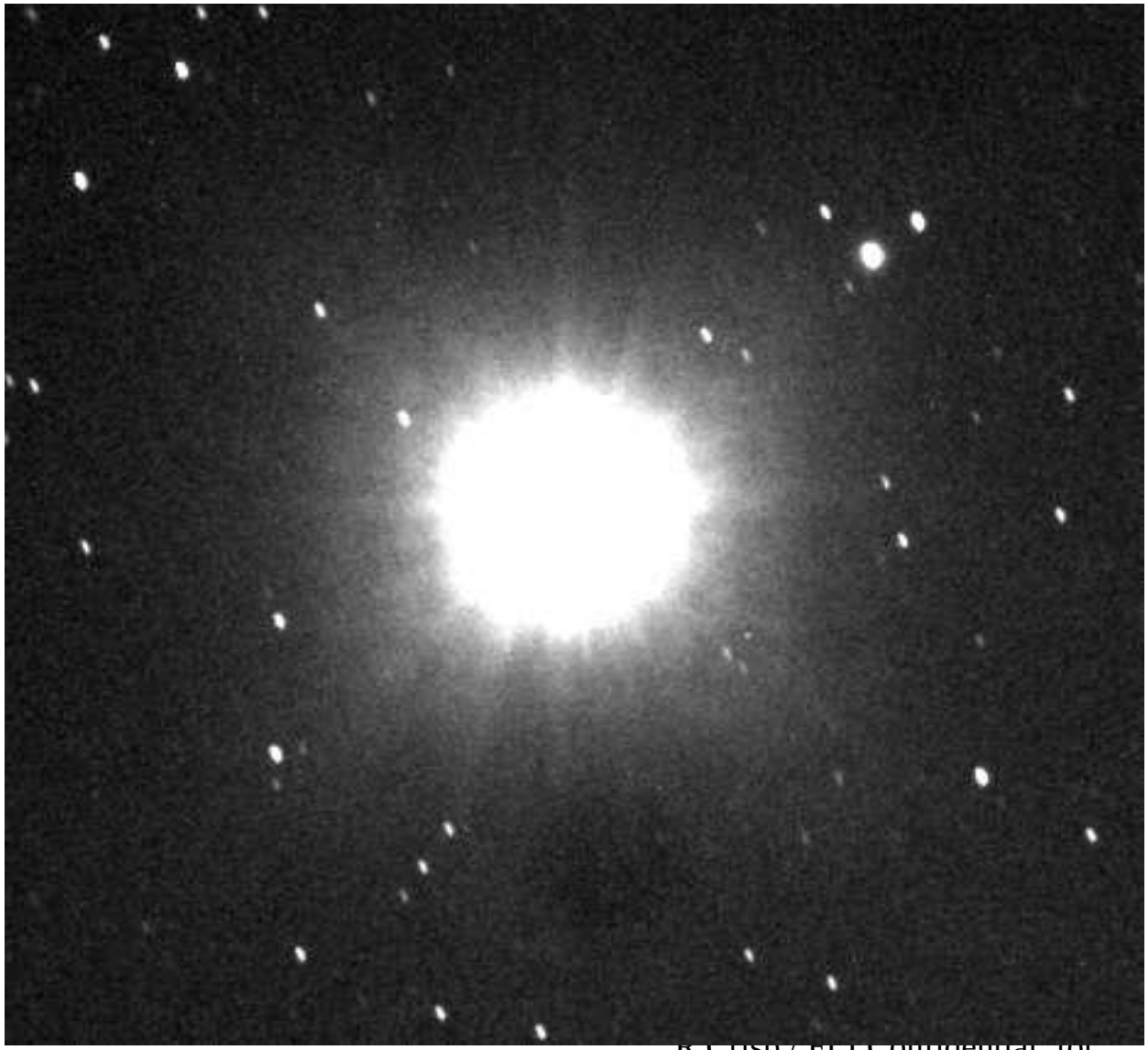
Line Profile: “J” Window



Line Profile: “K” Window



Rectangular Halo (No window)



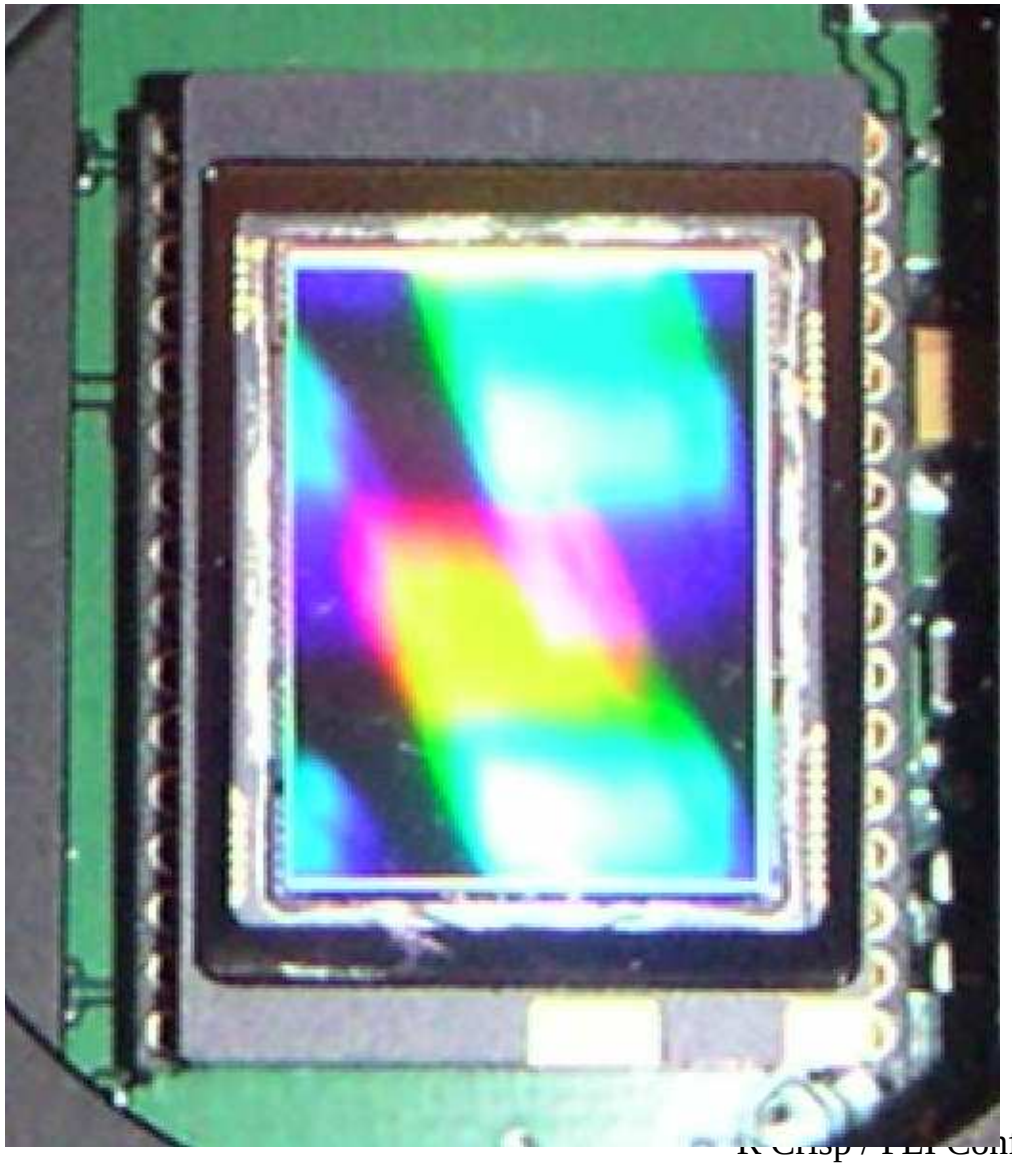
- Observed in all images
- Most prominent in images with circular halo diminished
- Observable in no-window case

Camera Interior (shutter removed)

Image taken with flash
Note reflection from sensor surface

- Rectangular reflective shapes observed:
  - Rectangular sensor is highly reflective: note the pattern
  - Shiny ring surrounding edge of die
- PCB is highly reflective but not so much as the sensor
- Exposed gold surfaces on sensor package and socket pins

Sensor Area



- Many reflective surfaces
- Metal ring around outside edge of die
- Bonding fingers on package
- Gold surfaces on sensor package
- Gold socket tips

Analysis

- Stock window exhibits circular haloes when used in FSQ106 system with no filter
- Haloes diminished using “K” and “J” windows
- “K” window gives best results of the four. Spectral transmission characteristics not measured
- Images taken with no window show rectangular halo
- Examination of camera interior reveal highly reflective rectangular sensor surface surrounded by reflective surfaces from the PCB, and semiconductor packaging

Recommendations

- Check spectral transmission characteristics of each window. If “K” is acceptable, use type “K” for ML8300 windows
- Make anti-reflective bezel to surround image sensor: make coplanar with image sensor coverslip