

## The Solar Spectrum through TS23

An excellent approach to confirming that your grating is set to the correct angle is to observe the spectrum of the Sun through the solar port. See [solar port mechanism](#) for how to use the solar port. The solar spectrum has a number of very strong absorptions in the bandpass for TS23 that form patterns that are easy to identify.

The detector is more sensitive in the red than the blue and the Sun is brighter in the red than the blue. Thus, an observation of the Sun is a compromise of getting enough flux in the blue without nearing saturation in the red. Typical solar port spectra are only a few seconds each.

In this document, we show the solar port spectrum obtained with TS23 using grating E2. The disperser is set to be on the blaze. Because of the observed brightness difference in the blue and the red, the spectrum is shown twice, once with the strength emphasizing lines in the blue and one emphasizing lines in the red. Many orders are labeled along the red edges of the orders. In addition, several obvious features have been identified.

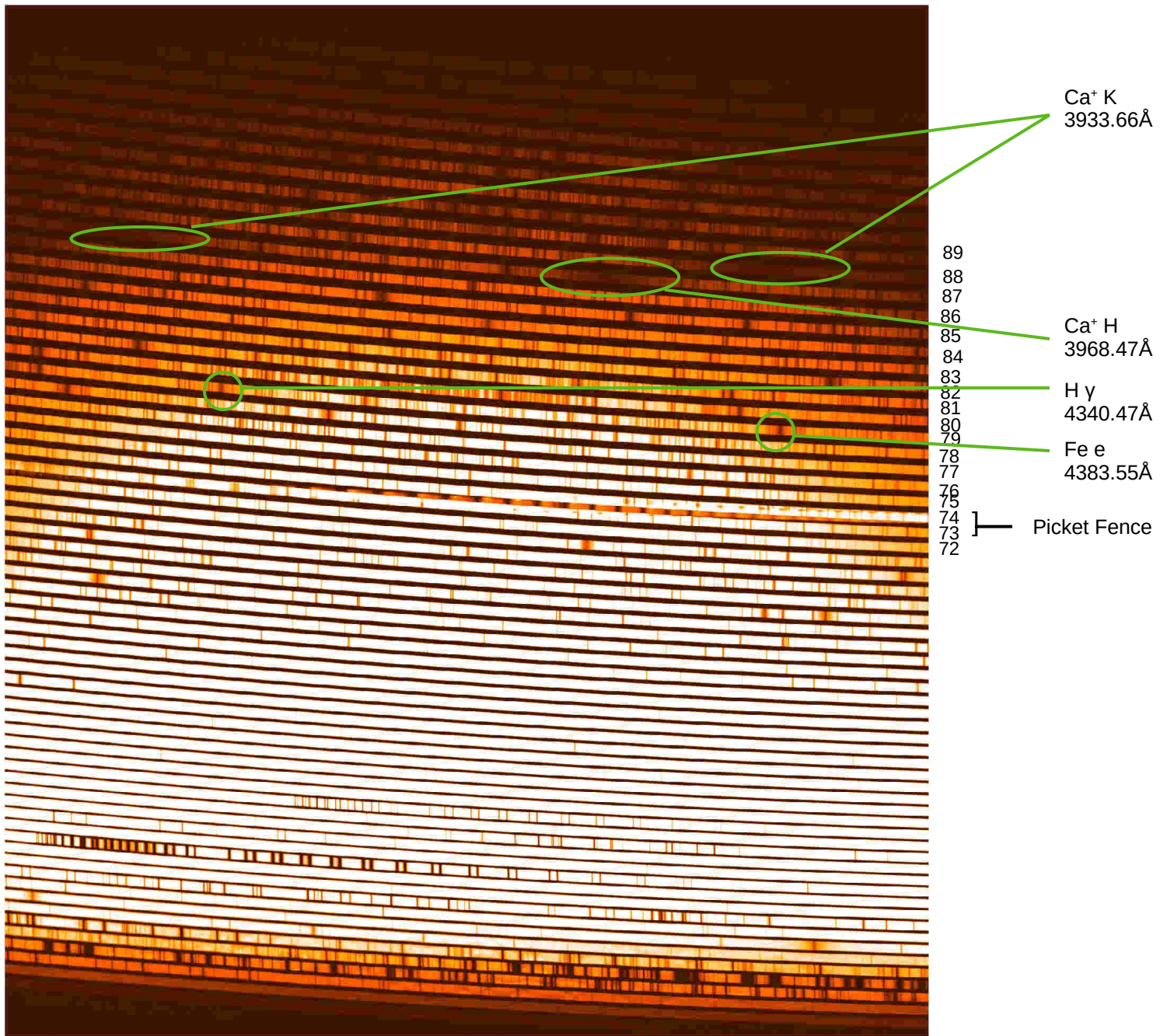
The orders are much closer together in the red than the blue. Thus, the red optimized spectrum has been enlarged in the Y direction for the red stretch. This allows us to label the close orders in the near IR, though even that is difficult and order numbers had to be offset from one another.

The “picket fence” seen in orders 73 and 74 is a reflection issue based on the design of the spectrum and is discussed in detail in Tull et al. 1995. The picket fence varies in strength considerably depending on the flux of the target.

The third image in the document is the ThAr spectral image as a comparison. Inspection of this makes it obvious that picking out known wavelengths with such an image is MUCH harder than the solar spectrum.

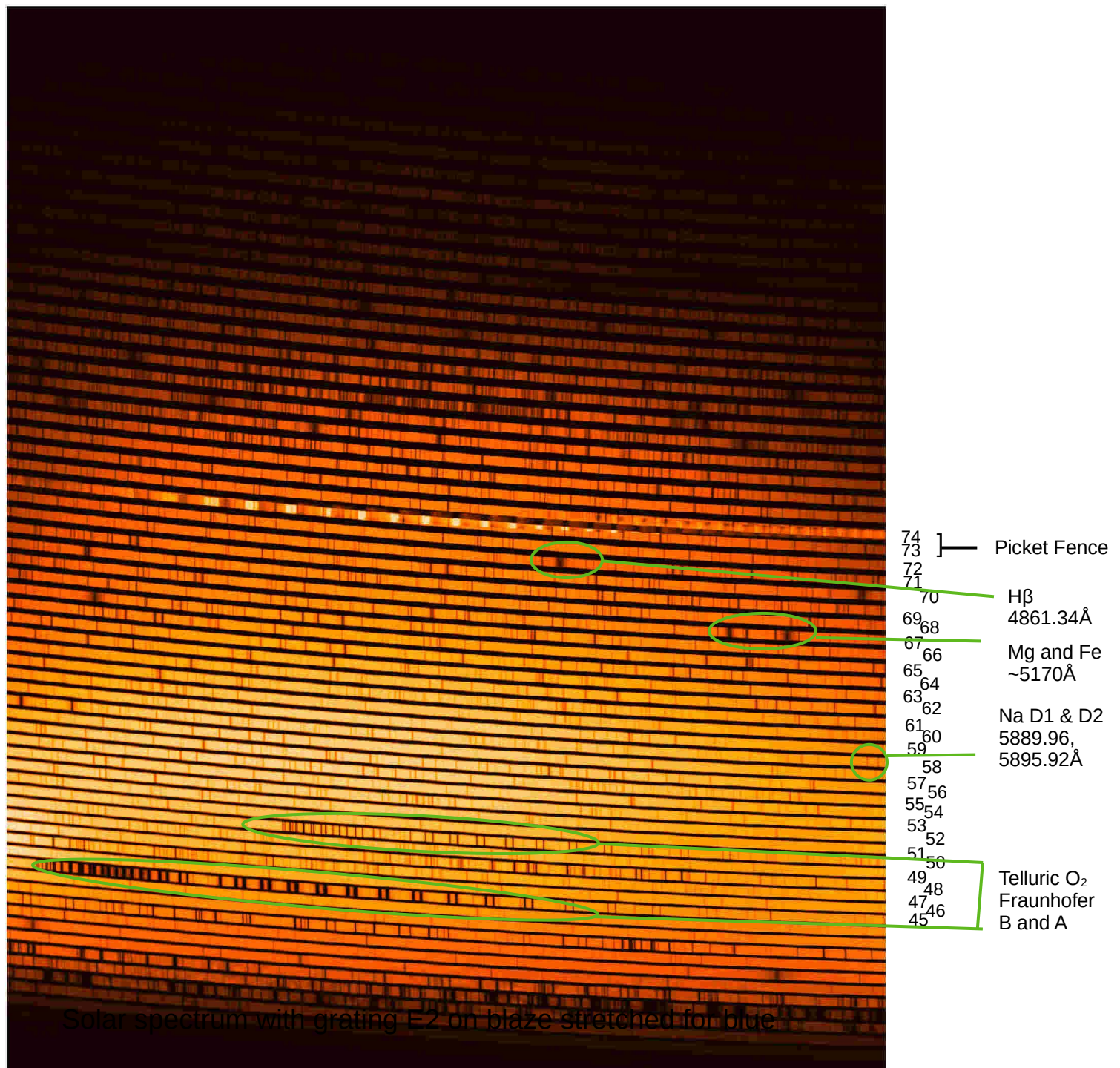
For wavelengths of each order, consult the [grating tables](#) of Bob Tull.

Solar spectrum with grating E2 on blaze stretched for blue





# Solar spectrum with grating E2 on blaze stretched for red



ThAr spectrum with grating E2 on blaze

