# Sommers Bausch Spectrograph
# Comparison Lines
# He Ne Ar

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**Abstract**

This document contains images of comparison lamp spectra taken at one focus for each of the minor ticks on the SBO's Spectrograph. The line intensities may have varied due to the time the lamps were left on as data was collected. The spectra were reduced using IRAF twodspec, ondspec, apextract packages together with apall.

Figure 1: - 6 degrees 45 minutes

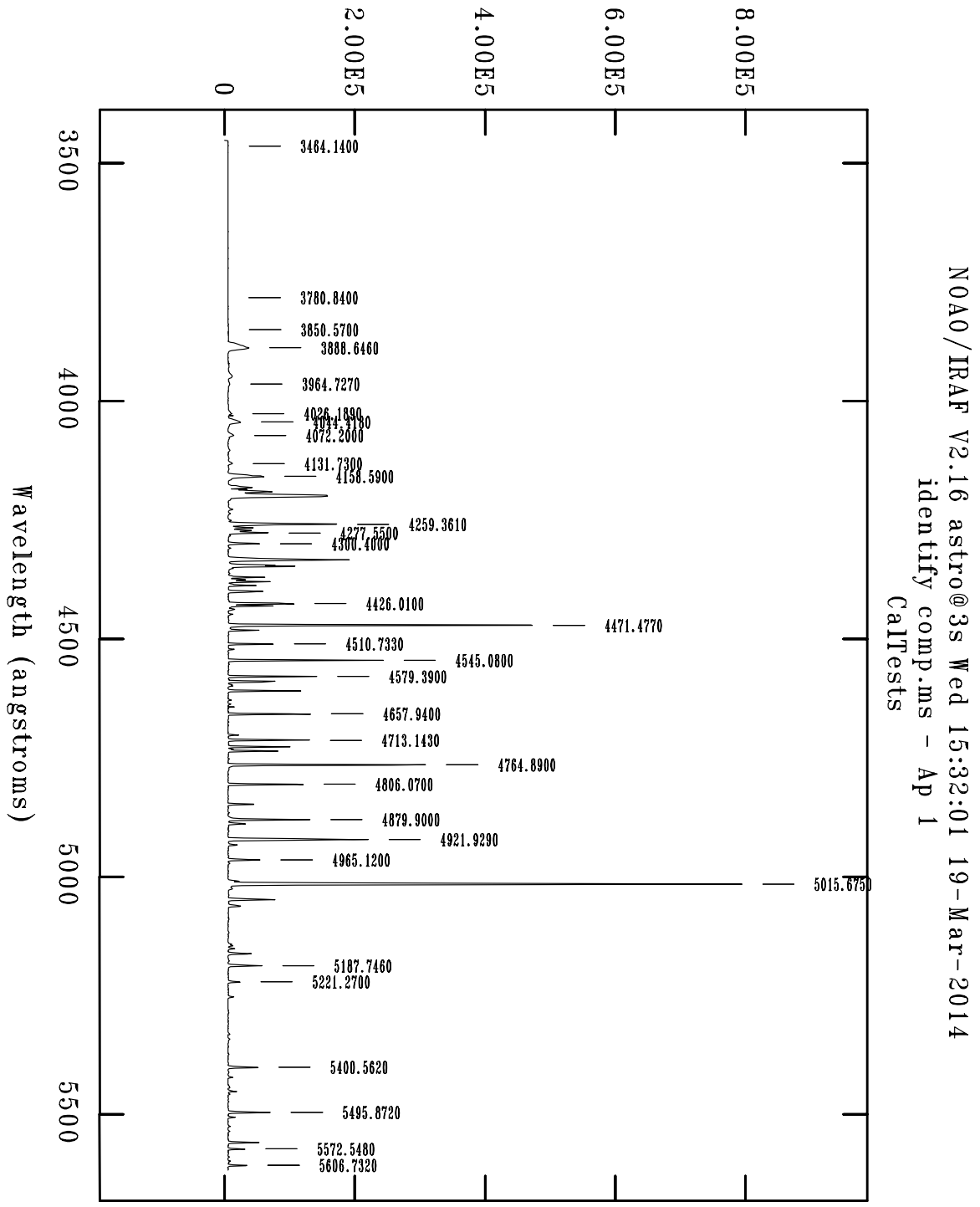


Figure 2: - 7 degrees 0 minutes

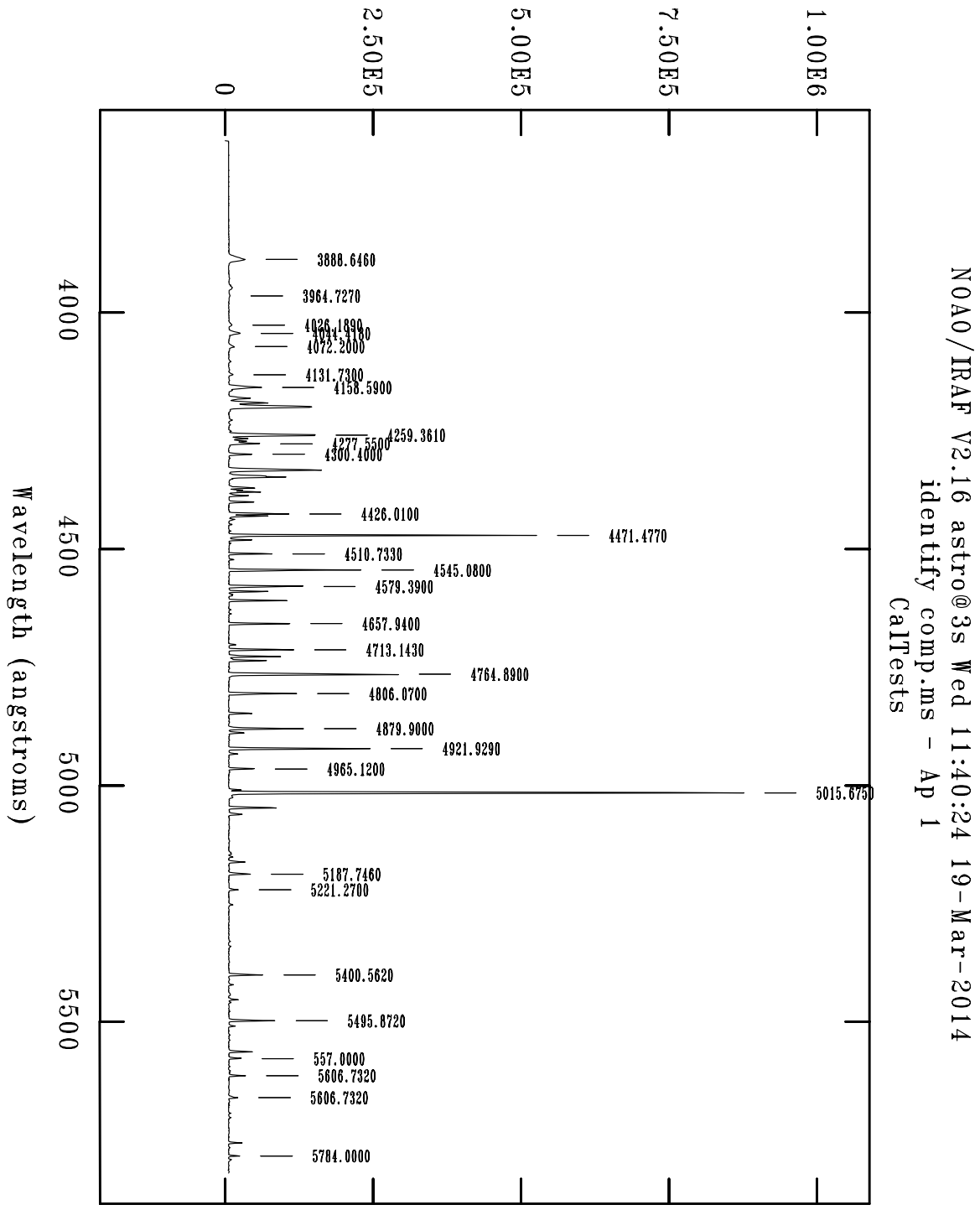


Figure 3: - 7 degrees 15 minutes

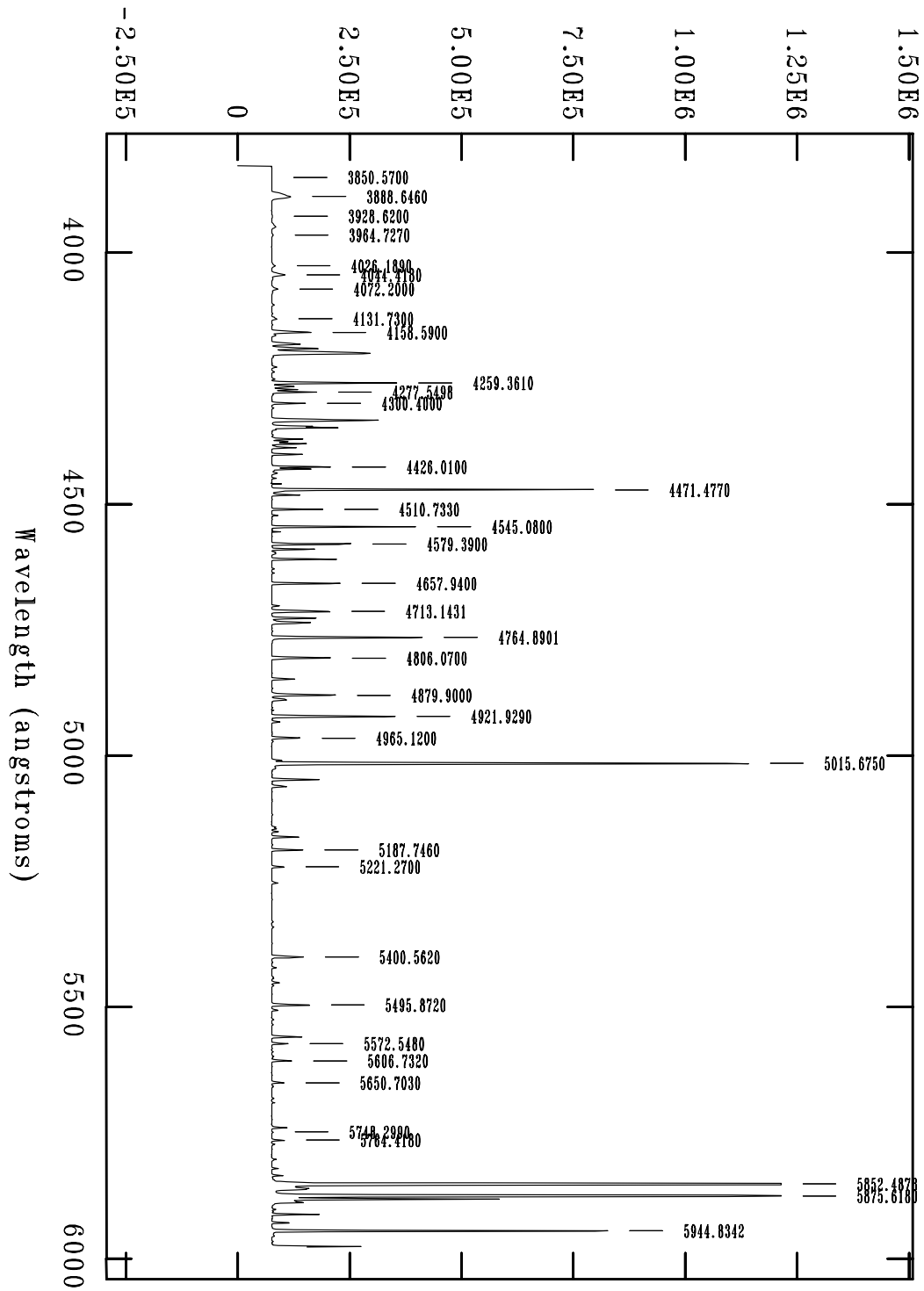


Figure 4: - 7 degrees 30 minutes

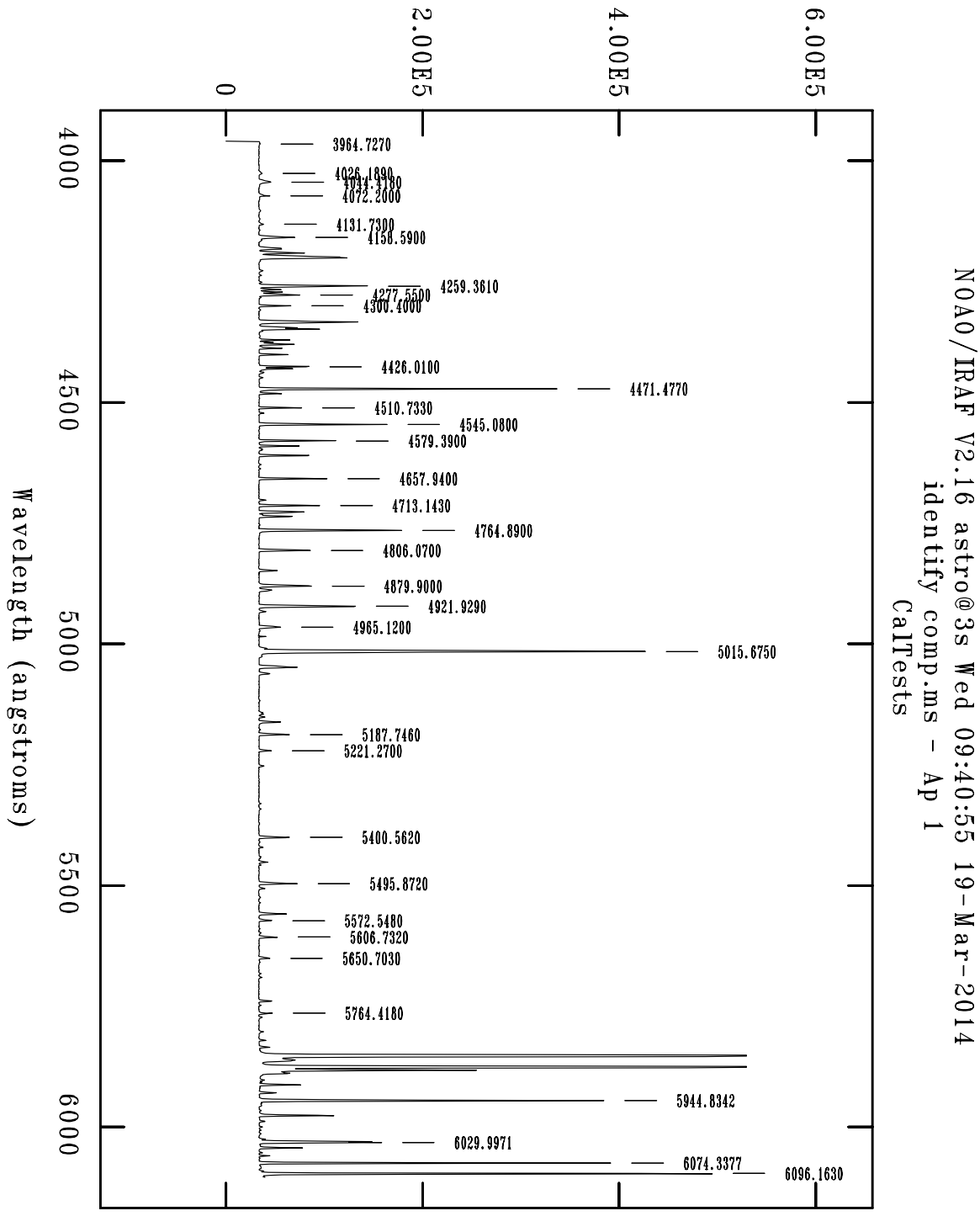


Figure 5: - 7 degrees 45 minutes

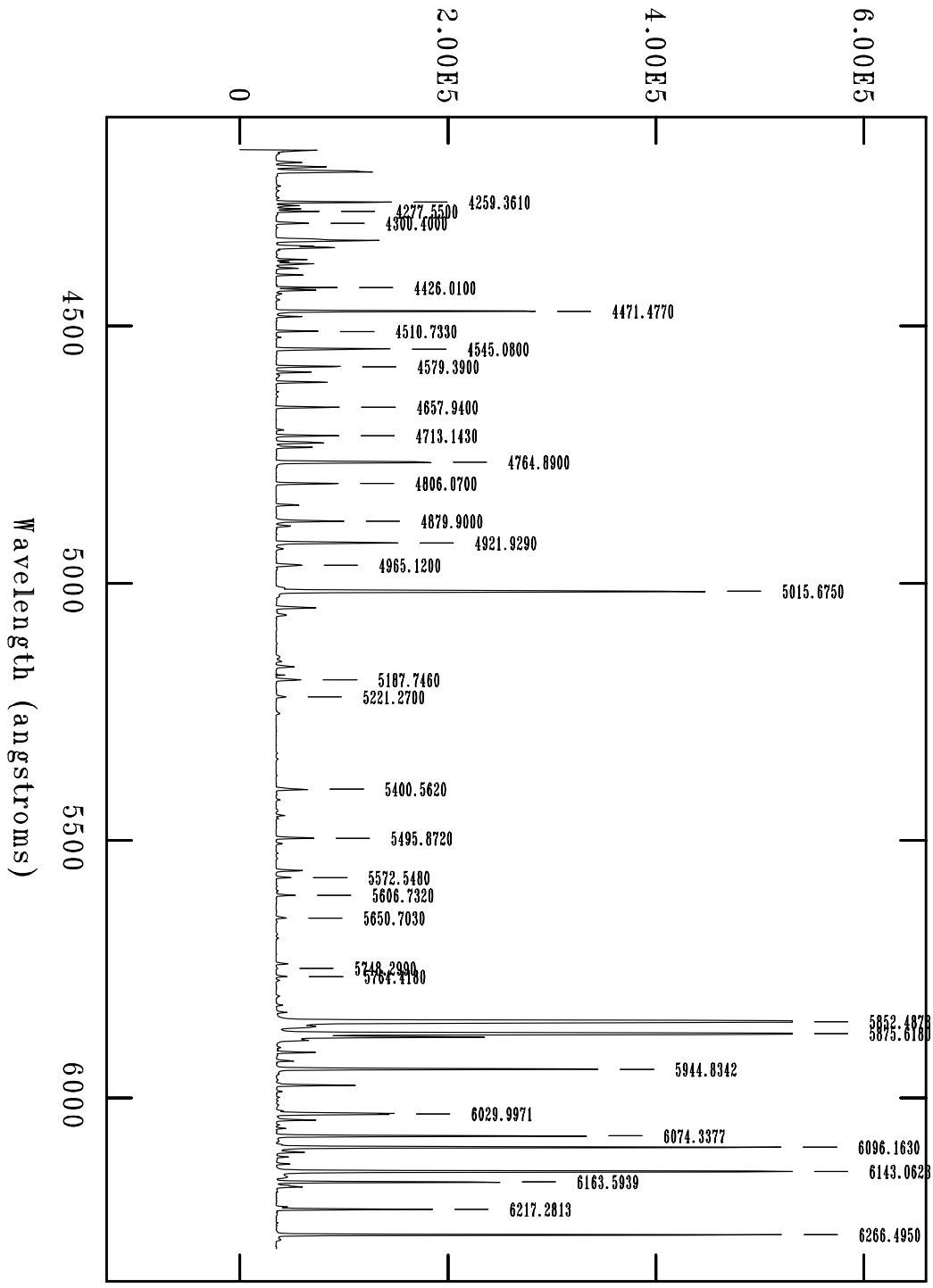


Figure 6: - 8 degrees 0 minutes

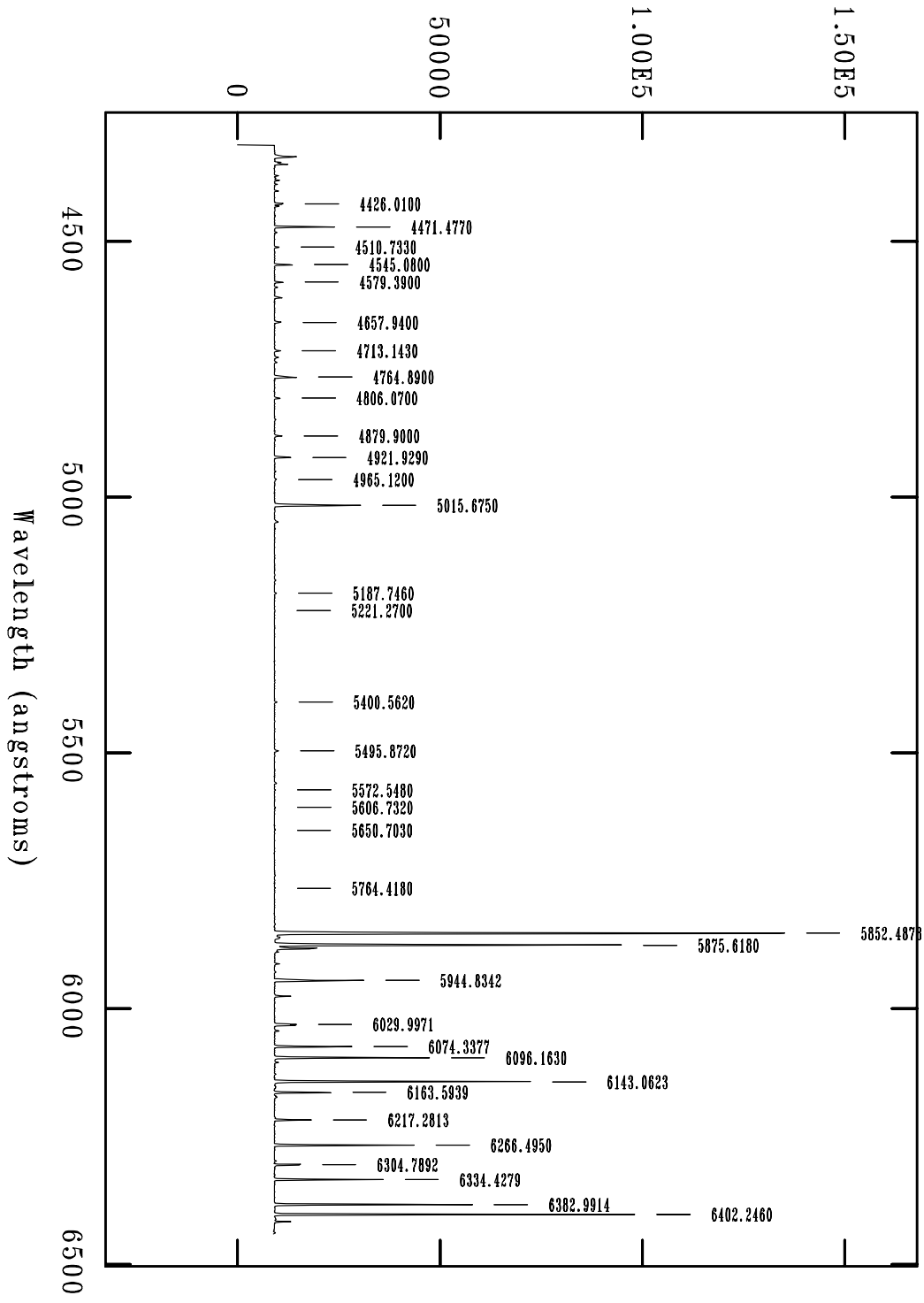


Figure 7: - 8 degrees 15 minutes

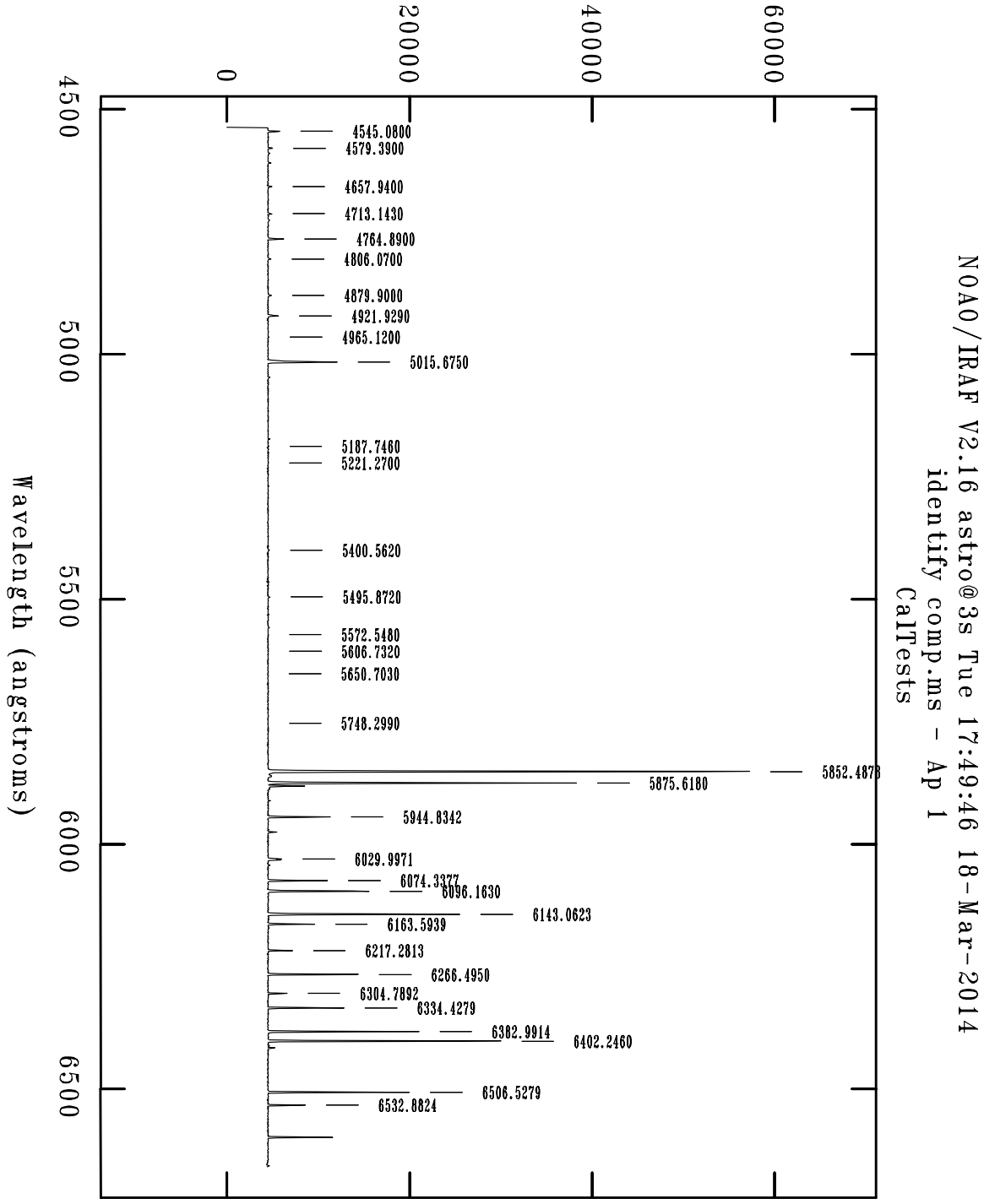


Figure 8: - 8 degrees 30 minutes

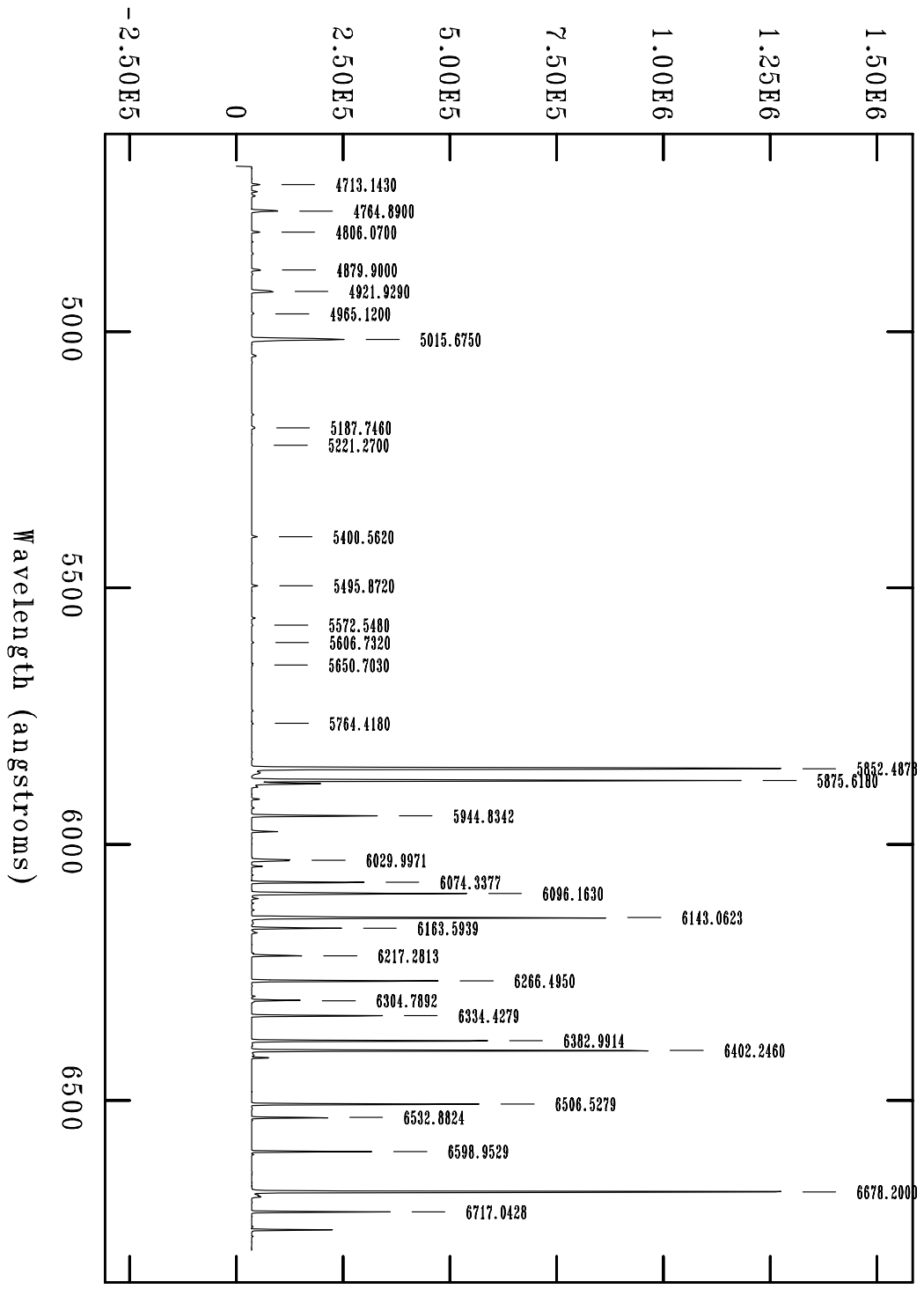


Figure 9: - 8 degrees 45 minutes

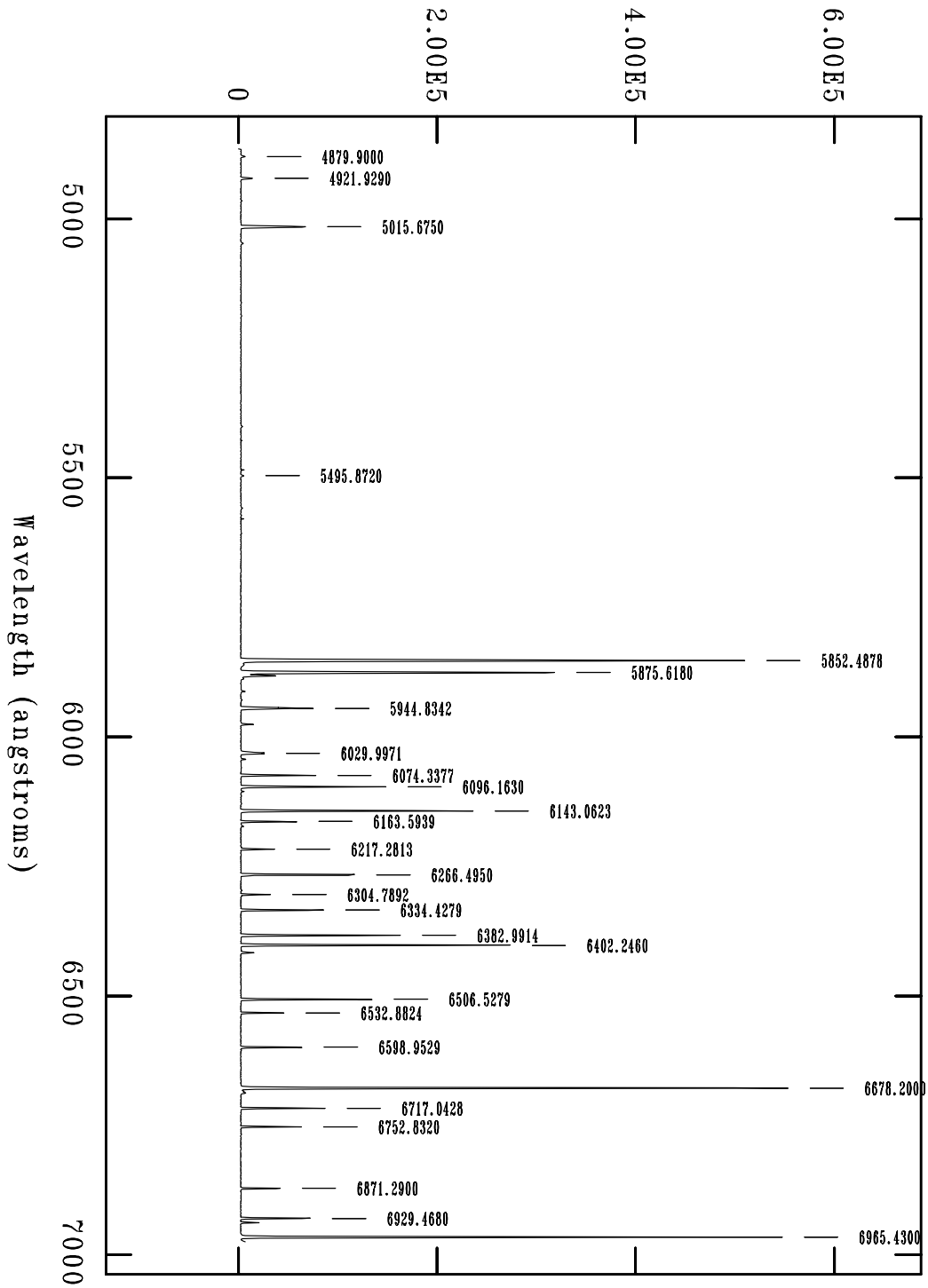


Figure 10: - 9 degrees 0 minutes

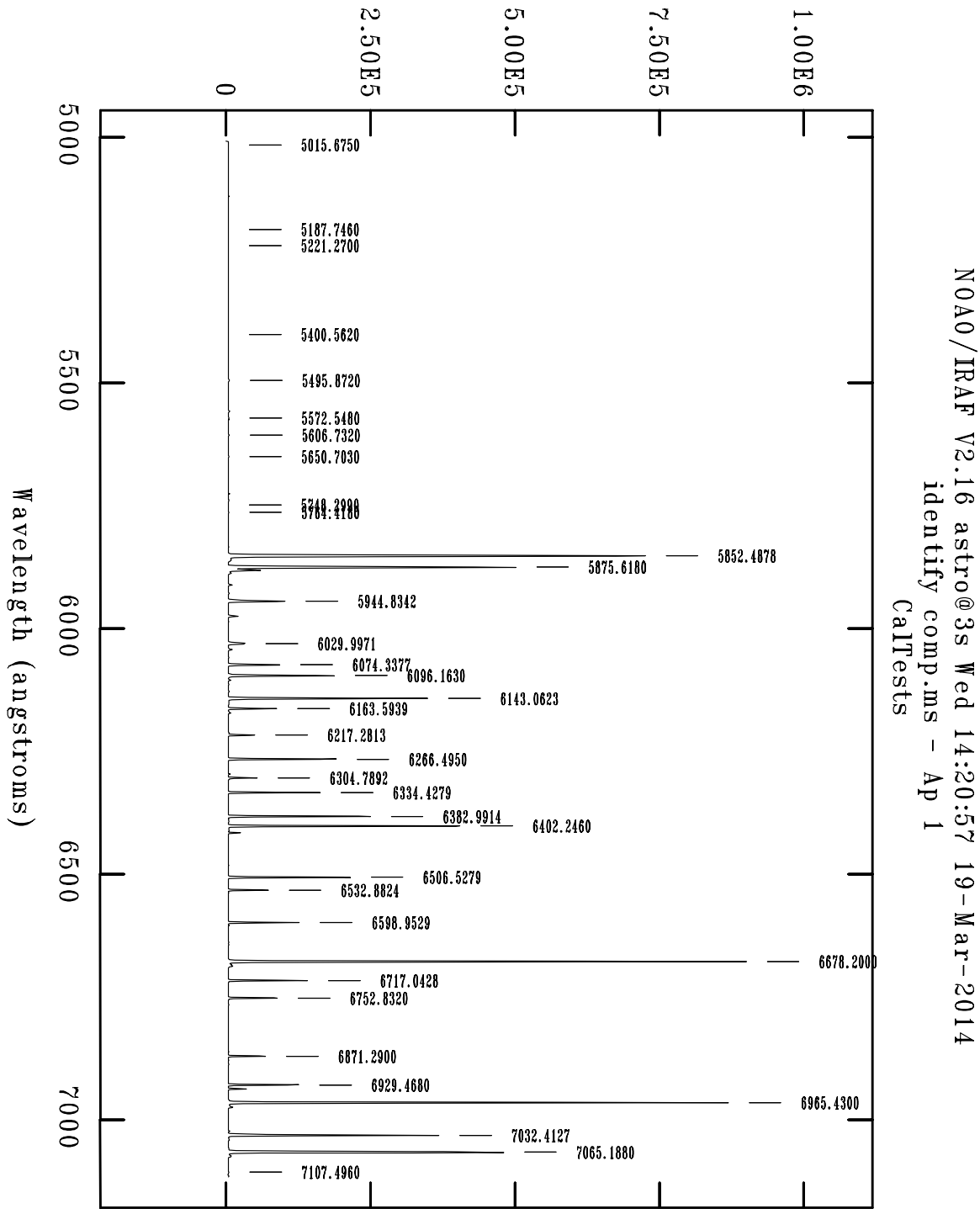


Figure 11: - 9 degrees 15 minutes

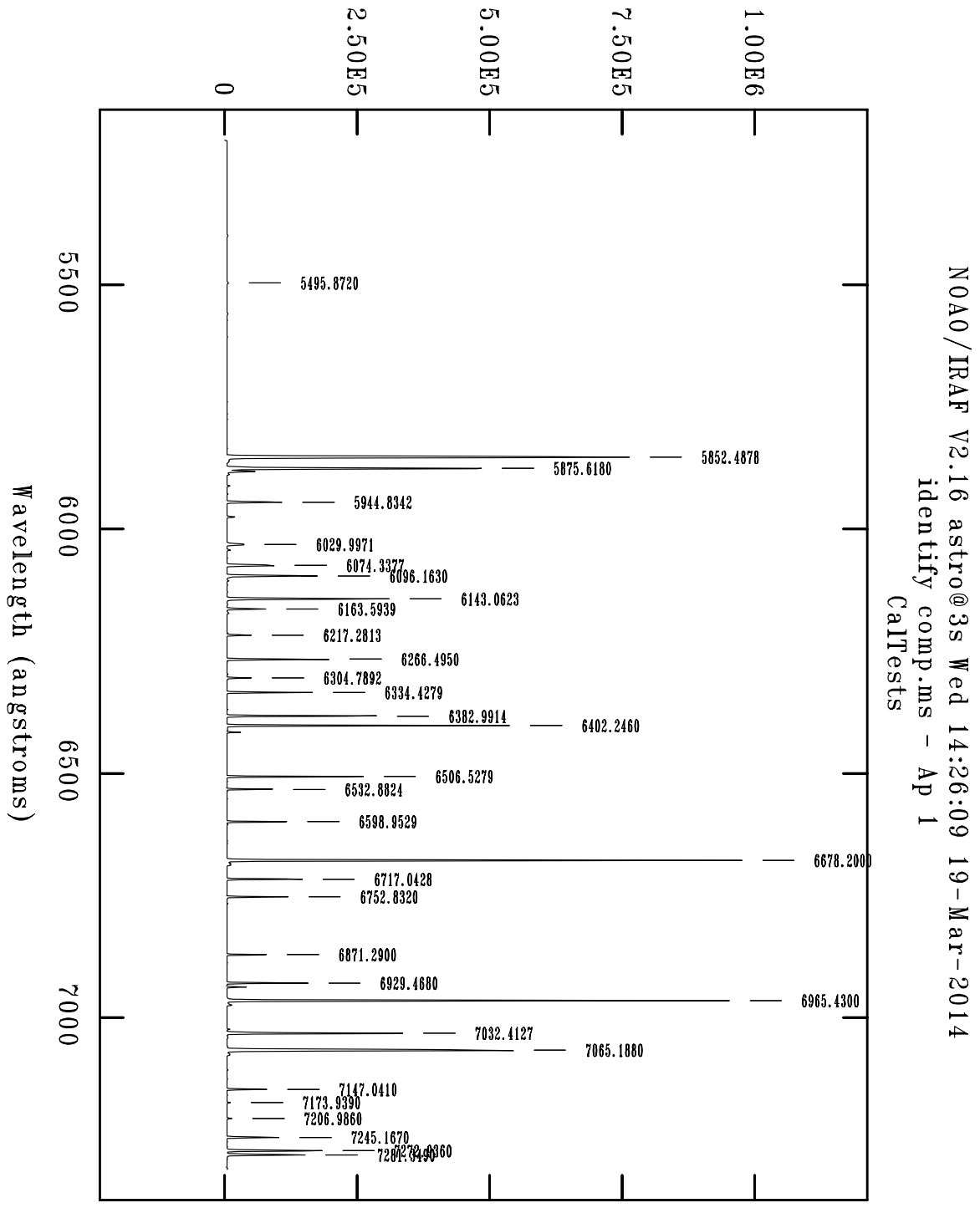


Figure 12: - 9 degrees 30 minutes

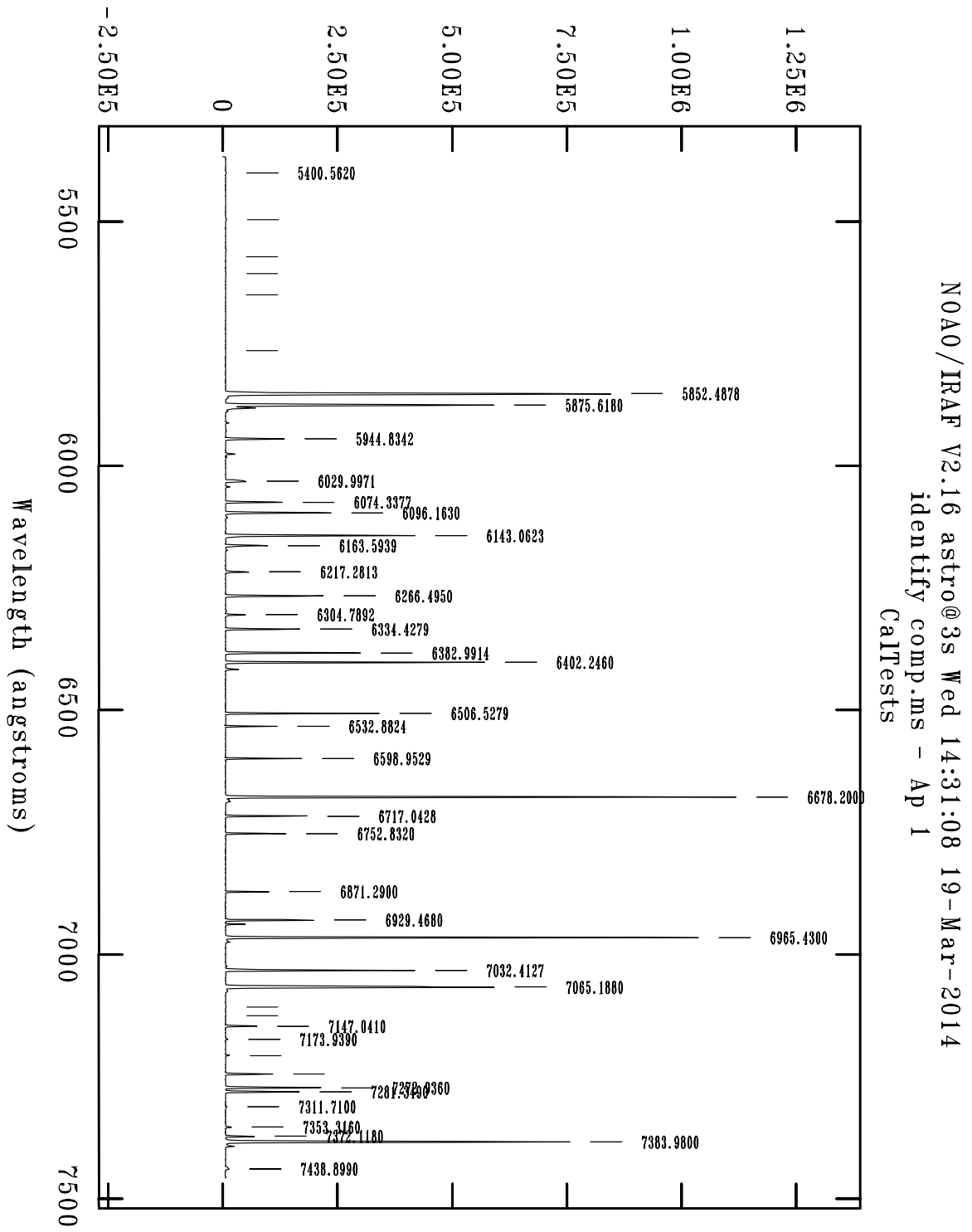


Figure 13: - 9 degrees 45 minutes

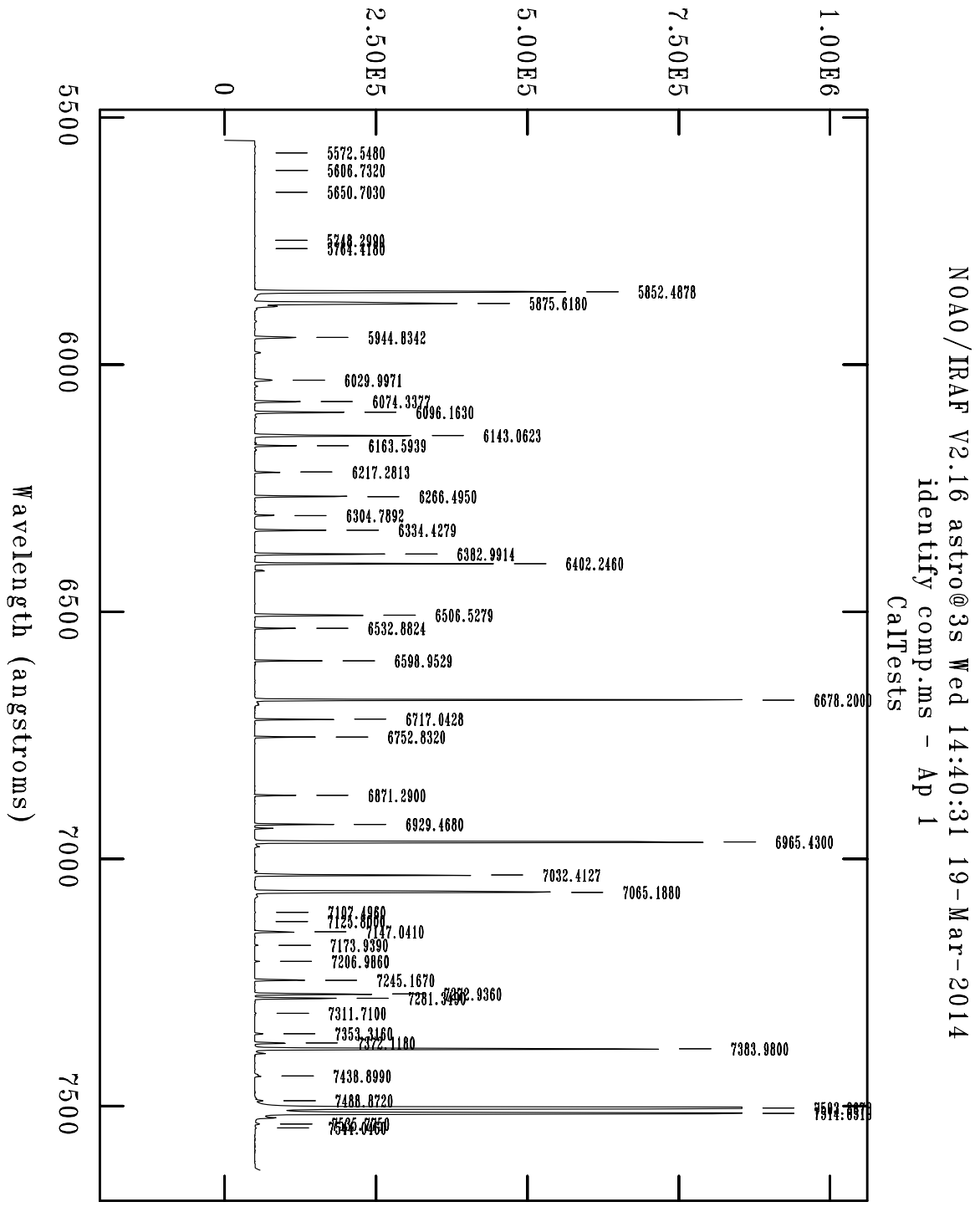


Figure 14: - 10 degrees 0 minutes

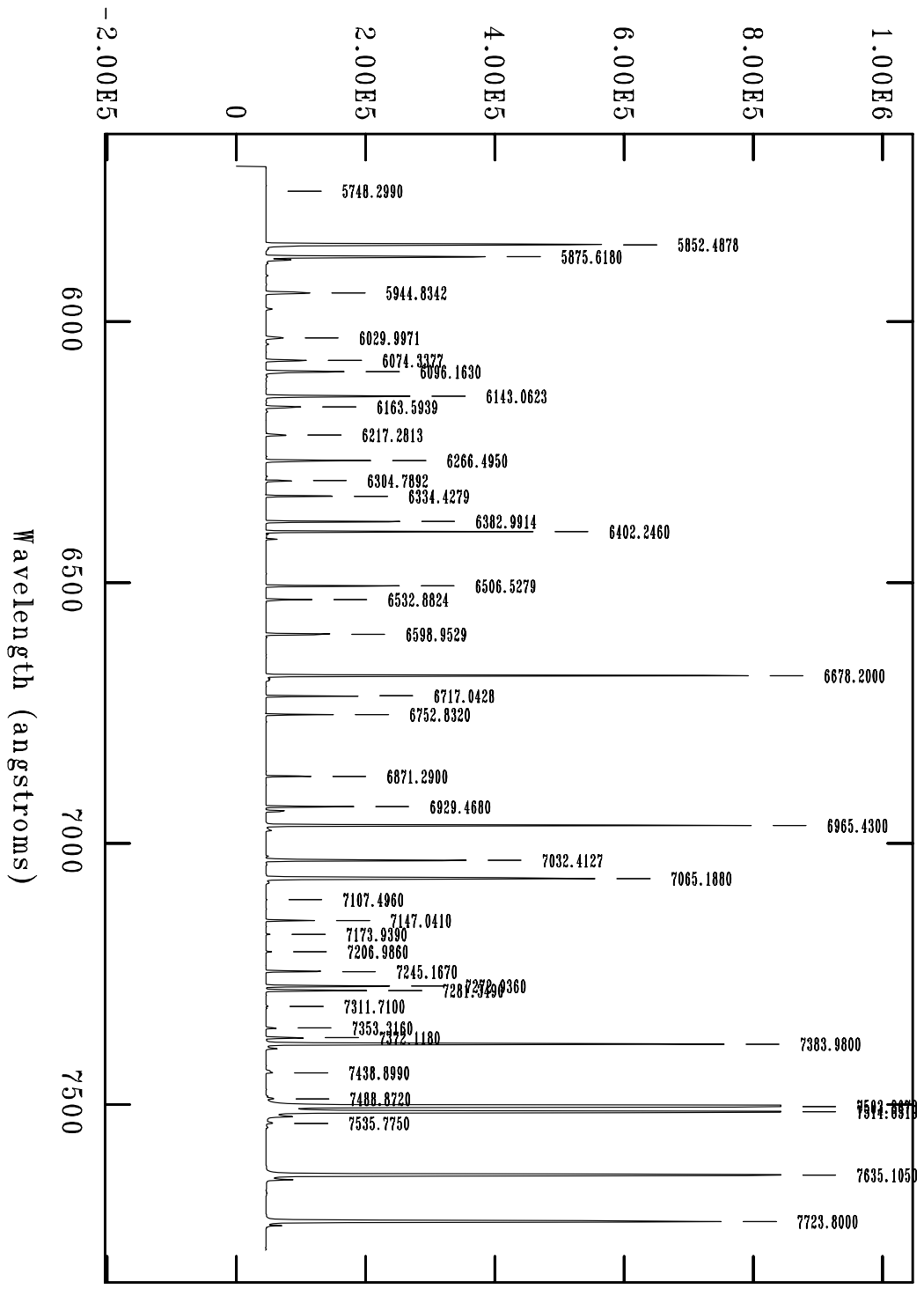


Figure 15: - 10 degrees 15 minutes

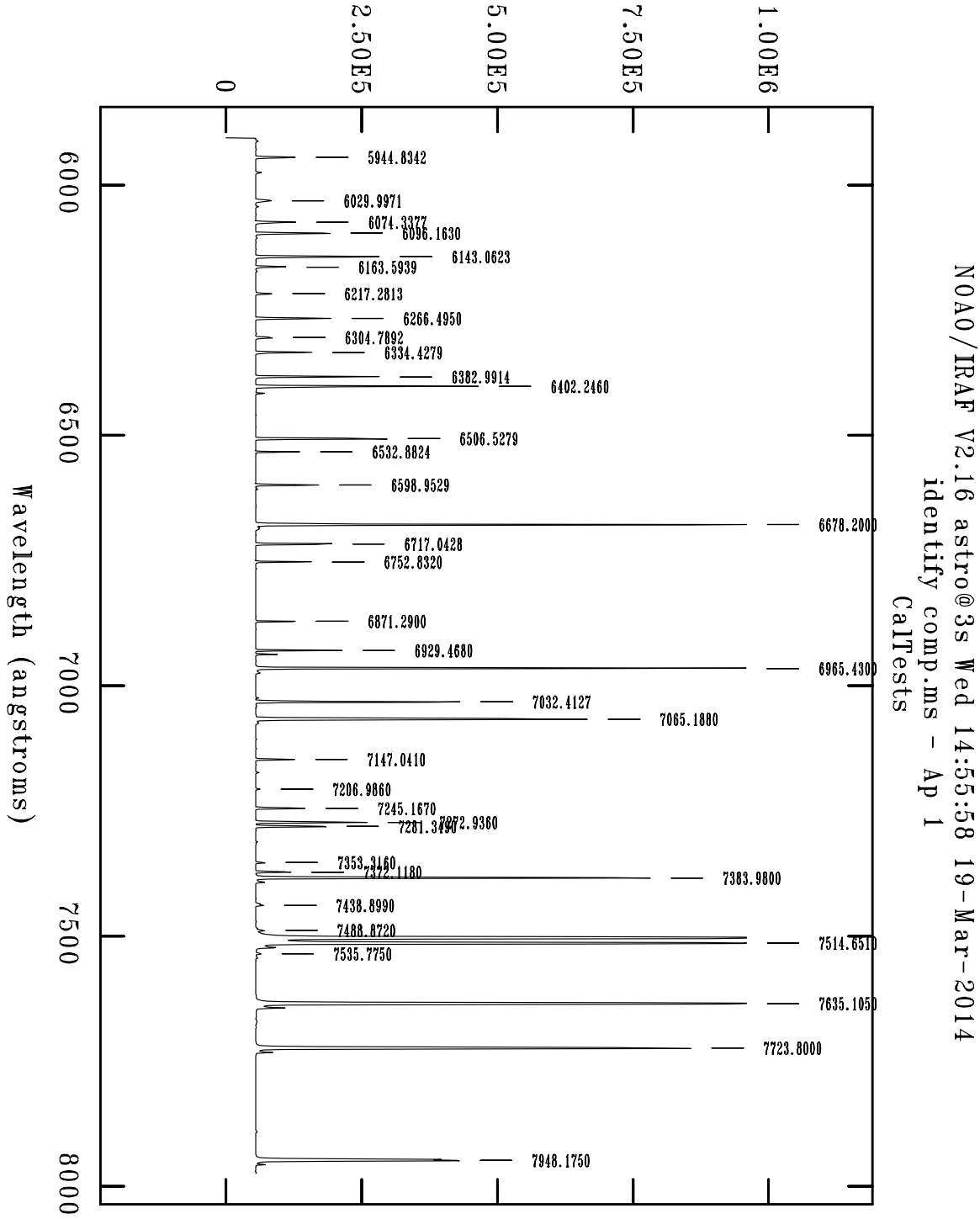


Figure 16: - 10 degrees 30 minutes

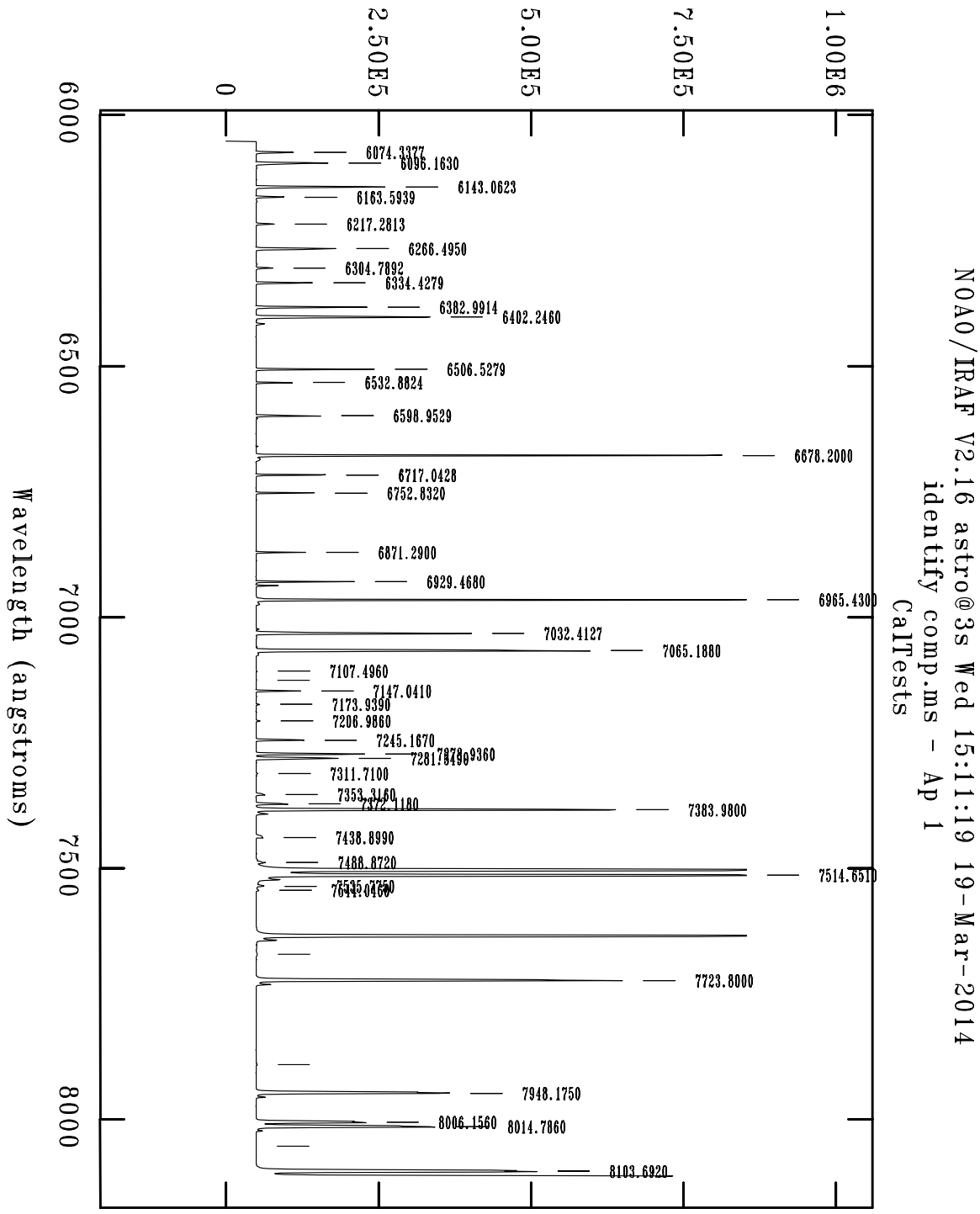
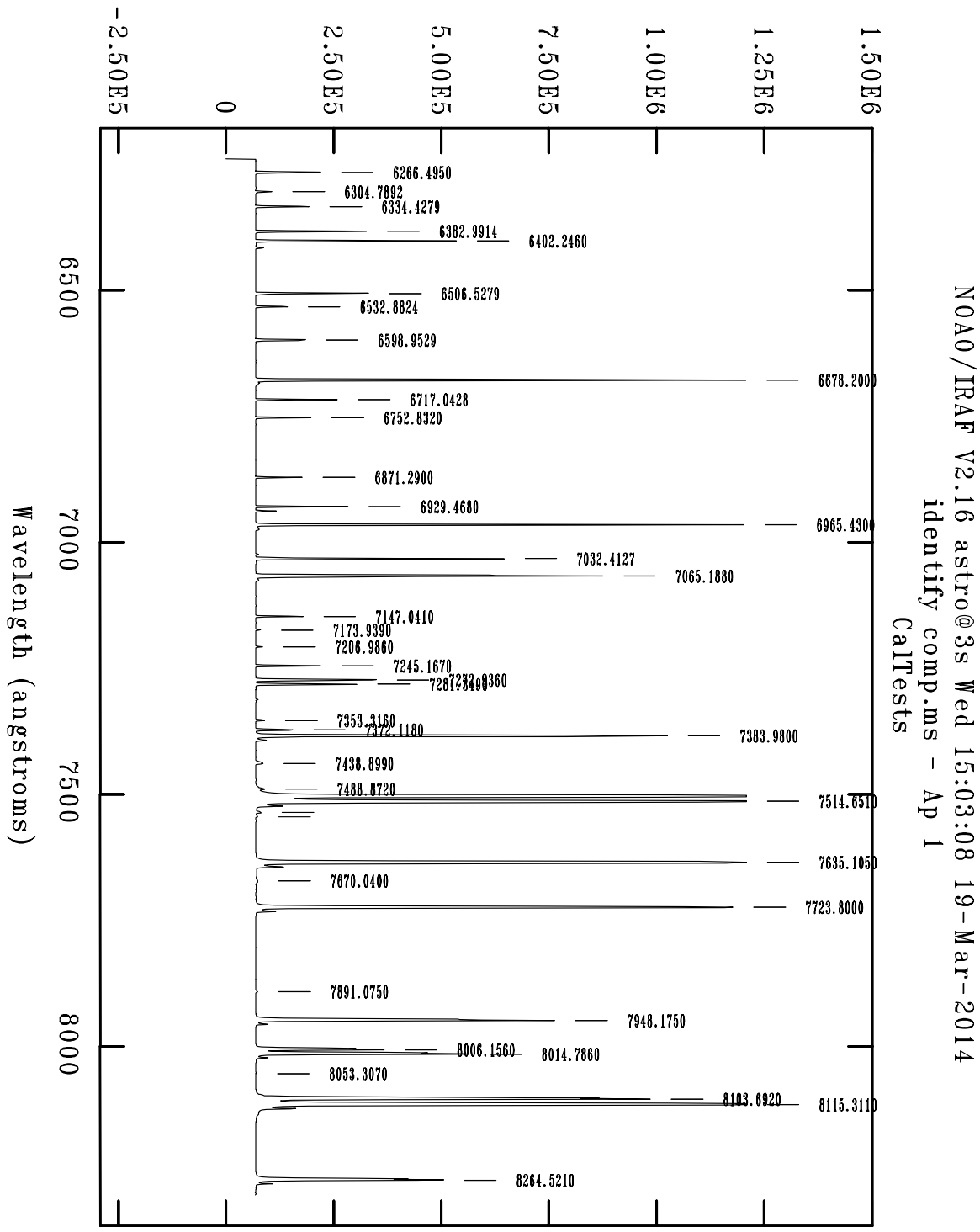


Figure 17: - 10 degrees 45 minutes



# A Production of These Images

The images were obtained quickly, as it was raining and could clear at anytime. Strict focus was not maintained, meaning the exercise should be done again.

The spectrograph was set to each of the tick-marks on the grating position, using the vernier scale to obtain an image roughly every 15 arc-minutes for the settings.

Both the HENE and the AR lamps were shot at one time. In future, shoot three sets: one lamp, other lamp, both.

## A.1 Reduction

The images were reduce in IRAF, by copying the comp image to comp.fits, and duplicating the comp image as sci.fits. This conformed to the template of reductions.

The task APALL was used to extract the aperture. The file was passed through IDENTIFY task to mark the lines. The file header was updated with hedit:

The file was then processed with DISPCOR. The file was viewed with SPLOT, and the line positions were marked and enumerated with SPLOT commands.

The snap feature was used to produce an image. The image was converted to postscript and saved. This document is a LaTeXdocument - with the images appearing as they would after an exposure.

# B Conclusion

The focus was not good. All images were shot consecutively and as the lamp warmed - the lines broadened.

Figure 18: - 11 degrees 0 minutes