

LINE IDENTIFICATION FOR NTT EMMI ECHELLE SPECTRA
THORIUM-ARGON :: GRATING ECHELLE 14 & GRISM 6
(OCTOBER 2004)

1 Introduction

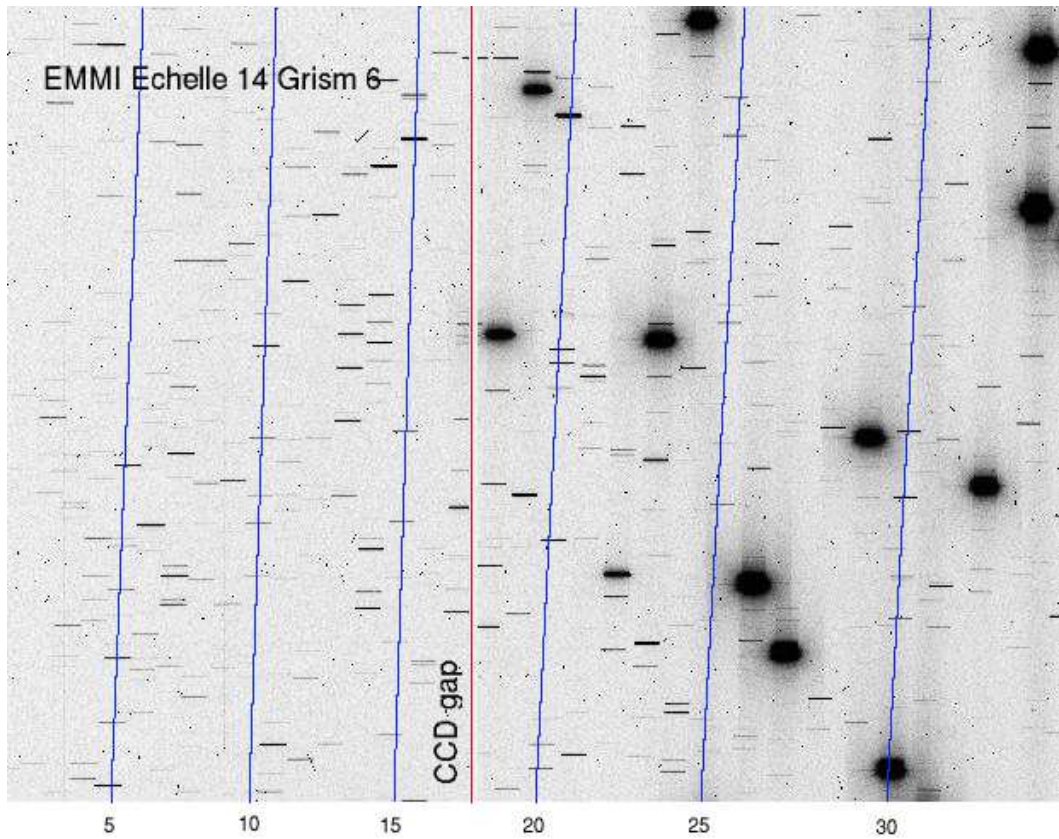
This document contains the atlas for line identification of NTT EMMI Echelle spectra taken with the Grating Echelle #14 with Grism #6 as cross-disperser.

2 Hints & Tips for the reduction

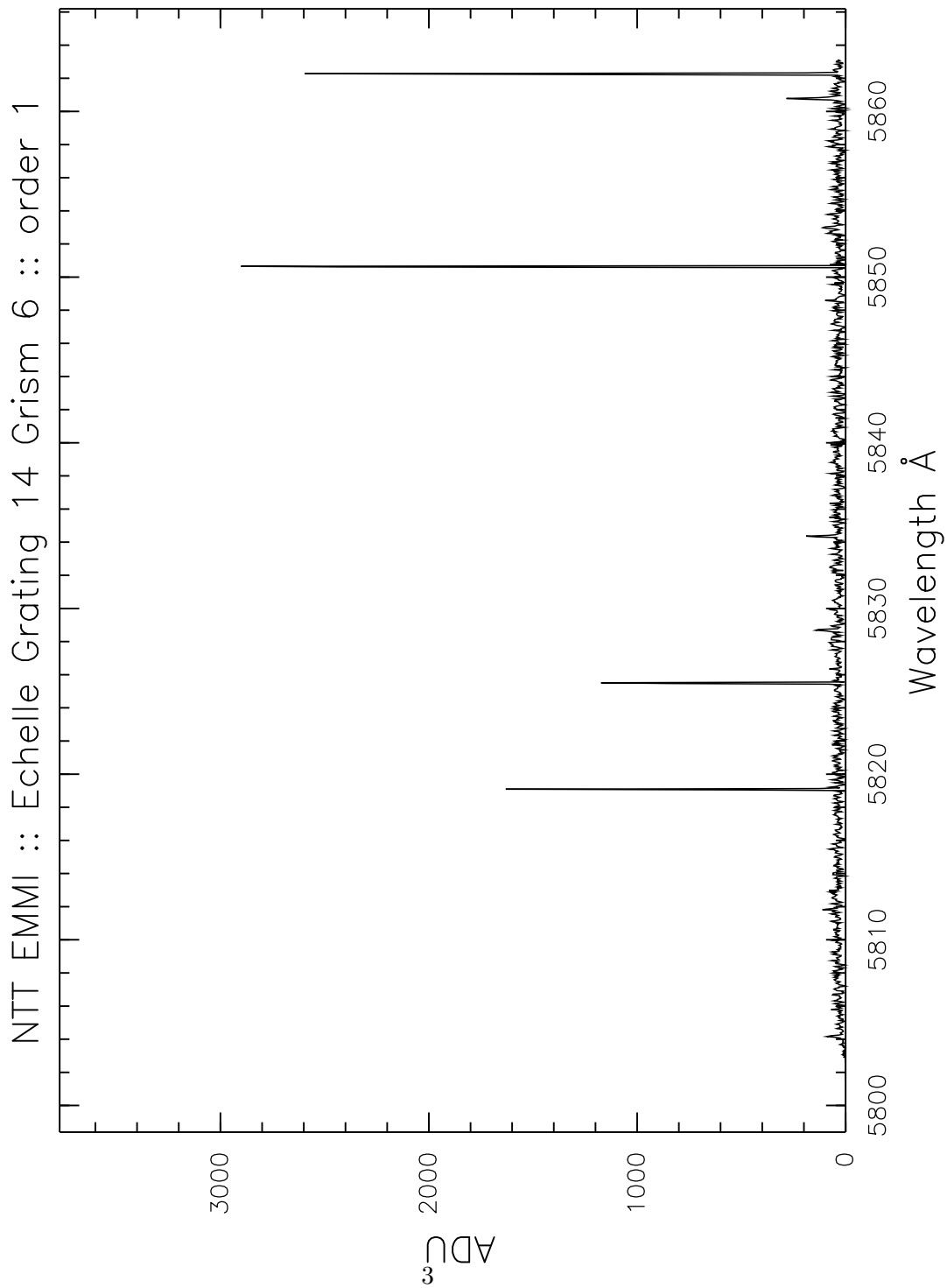
- To remove useless parts of the CCD, as well as blue orders impossible to trace, a cropping of the image should be done. A good compromise is: columns from 220 to 2070, and rows from 300 to 1700 (for an image binned 2x2). With this area, there are 33 orders. Note that the values for the rows are rather minimum values, since with them there is barely an overlap of the arc spectrum lines between the orders.
- The horizontal cut row used for the order identification must be around 900 pixels above the bottom of the image (binning 2, when cropped as mentioned above - this is the "line" parameter of the *aptrace* task in IRAF). This allow the two orders that are the most influenced by the CCD gap to be well visible for identification. Any value far from this one will make much more difficult the finding of the orders and the tracing of the particular orders that cross the CCD gap.
- The tracing process is critical for the end quality of the spectrum. Be very carefull with the definitions of the background regions (if any...). A tracing step between 10 and 30 is well suited for the reduction. Moreover, never use a large value for the parameter (in IRAF task *doeclit* or *aptrace*: "nsum") that controls the number of lines used to find and trace the profile along the dispersion axis. If larger than 20, it will produce a bad trace.

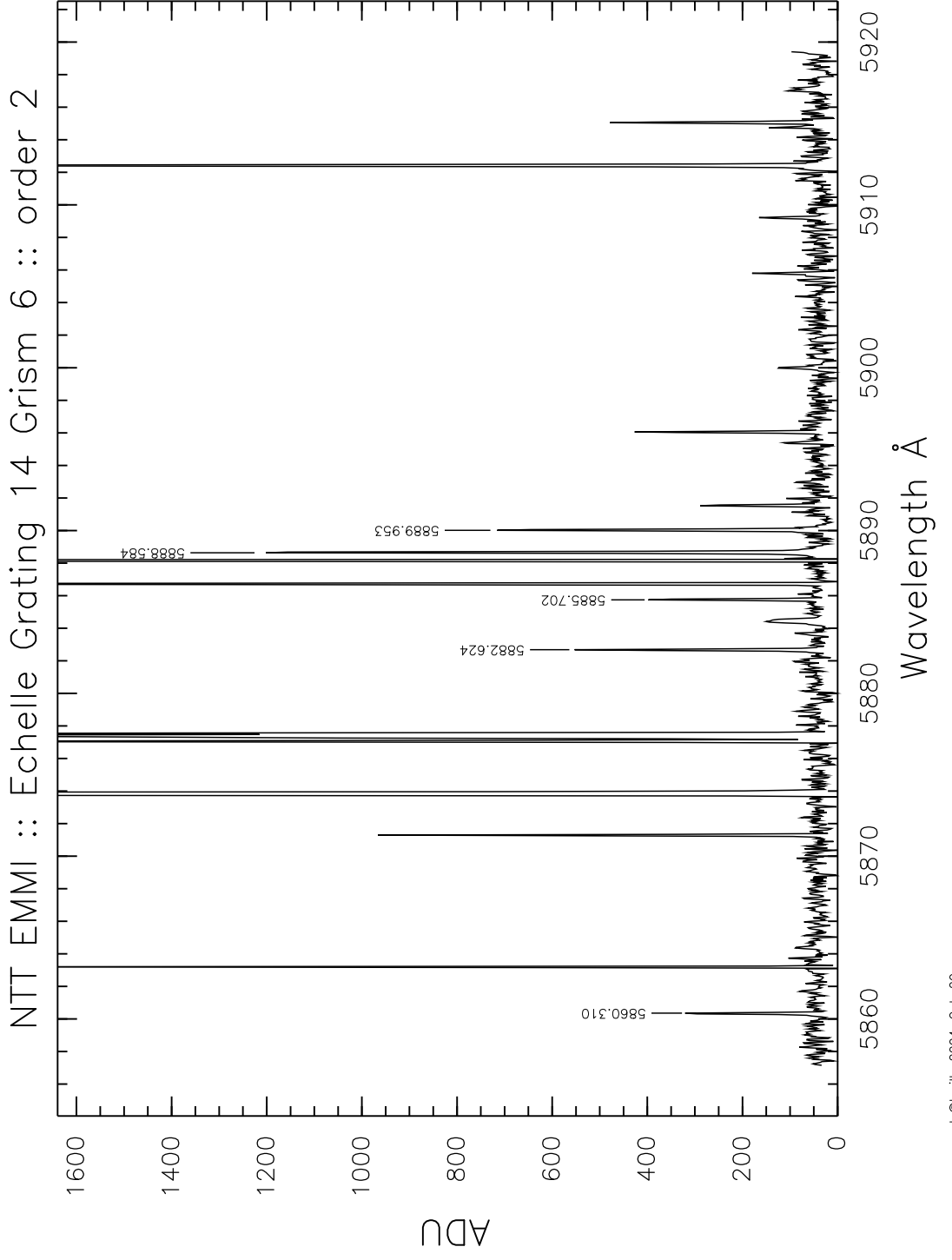
3 Image of the calibration spectrum

Below is the image of the Thorium-Argon frame cropped to the dimensions mentioned above. The CCD gap is indicated as well as the identification of the orders.

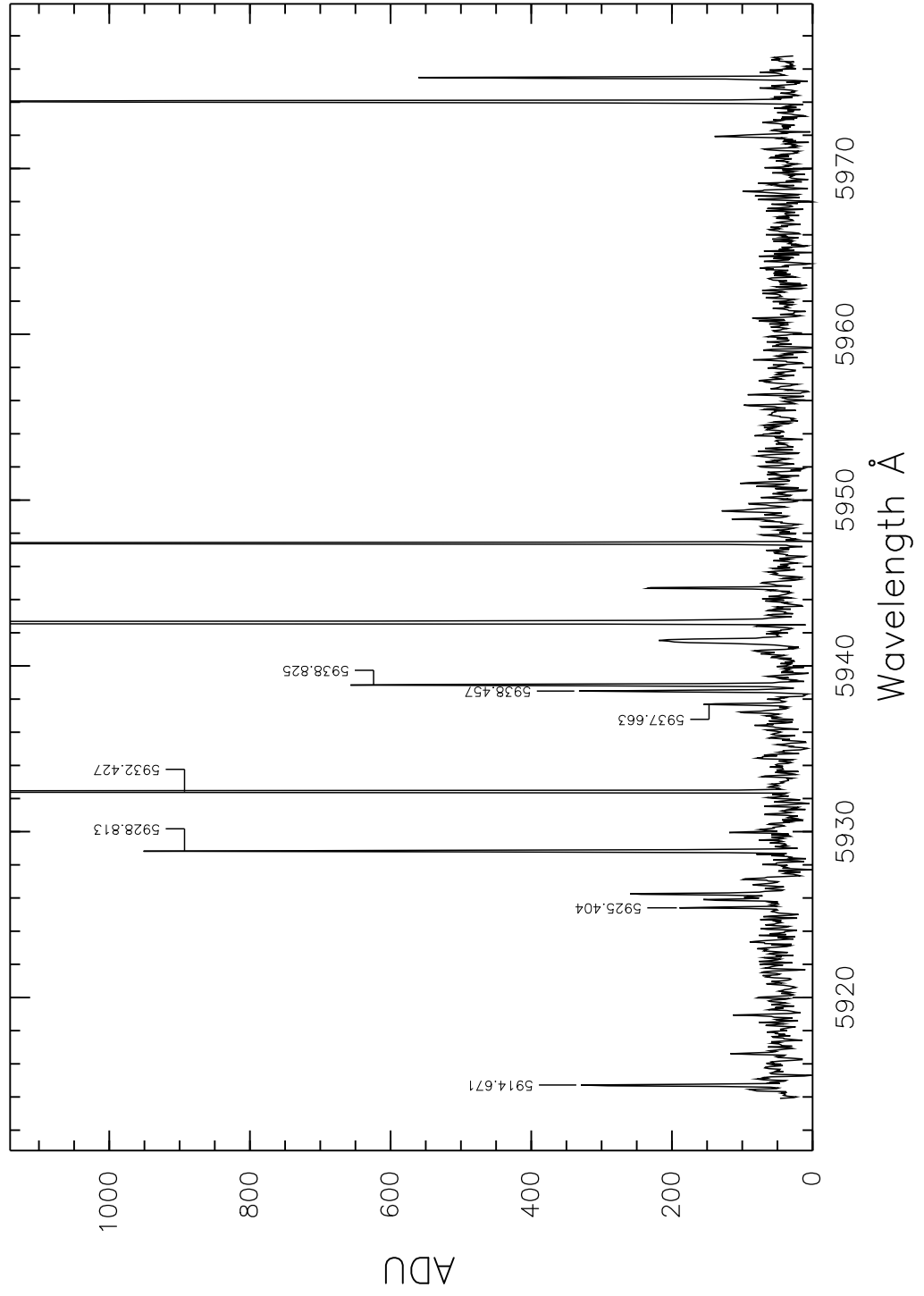


4 Atlas of line identification

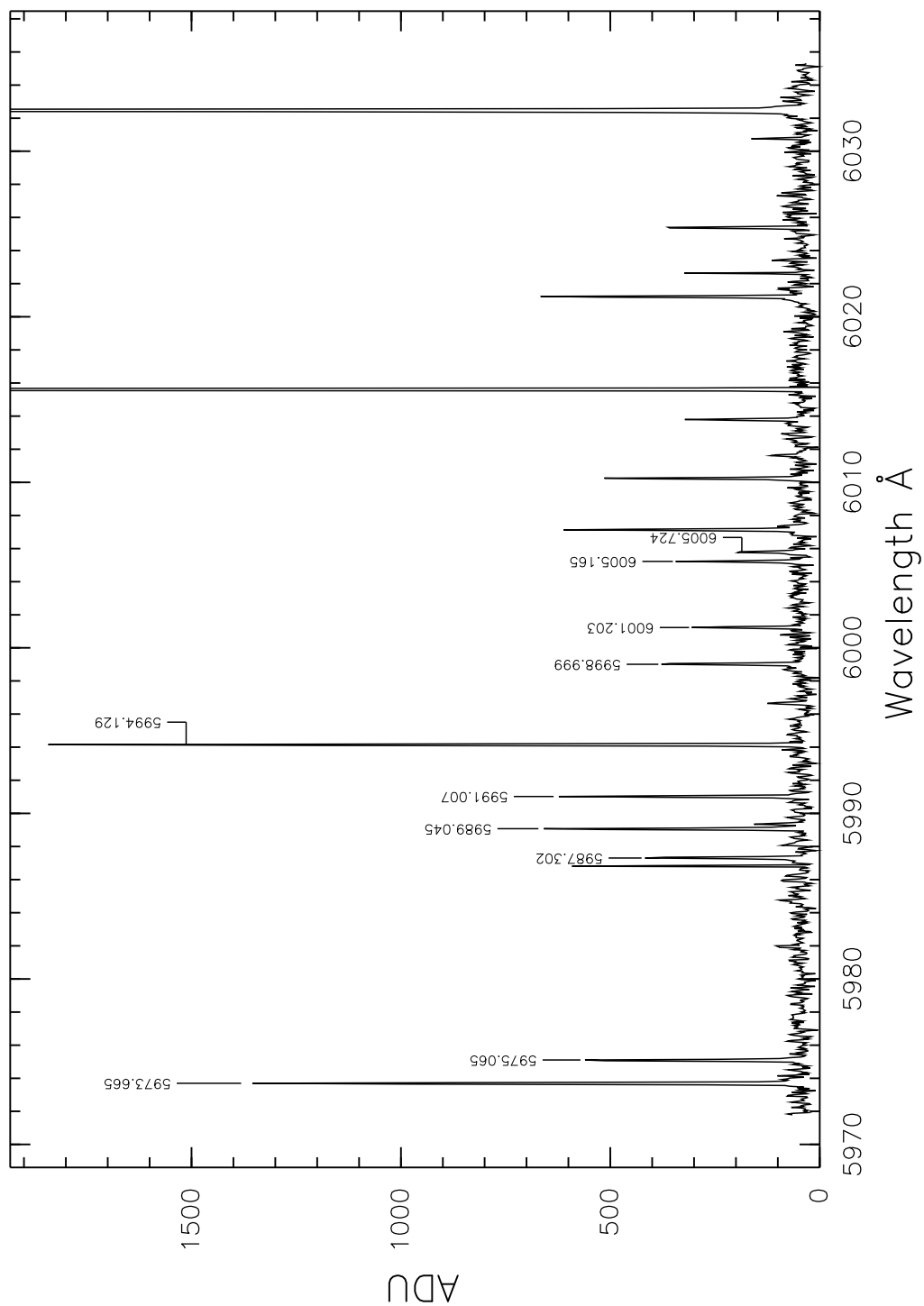


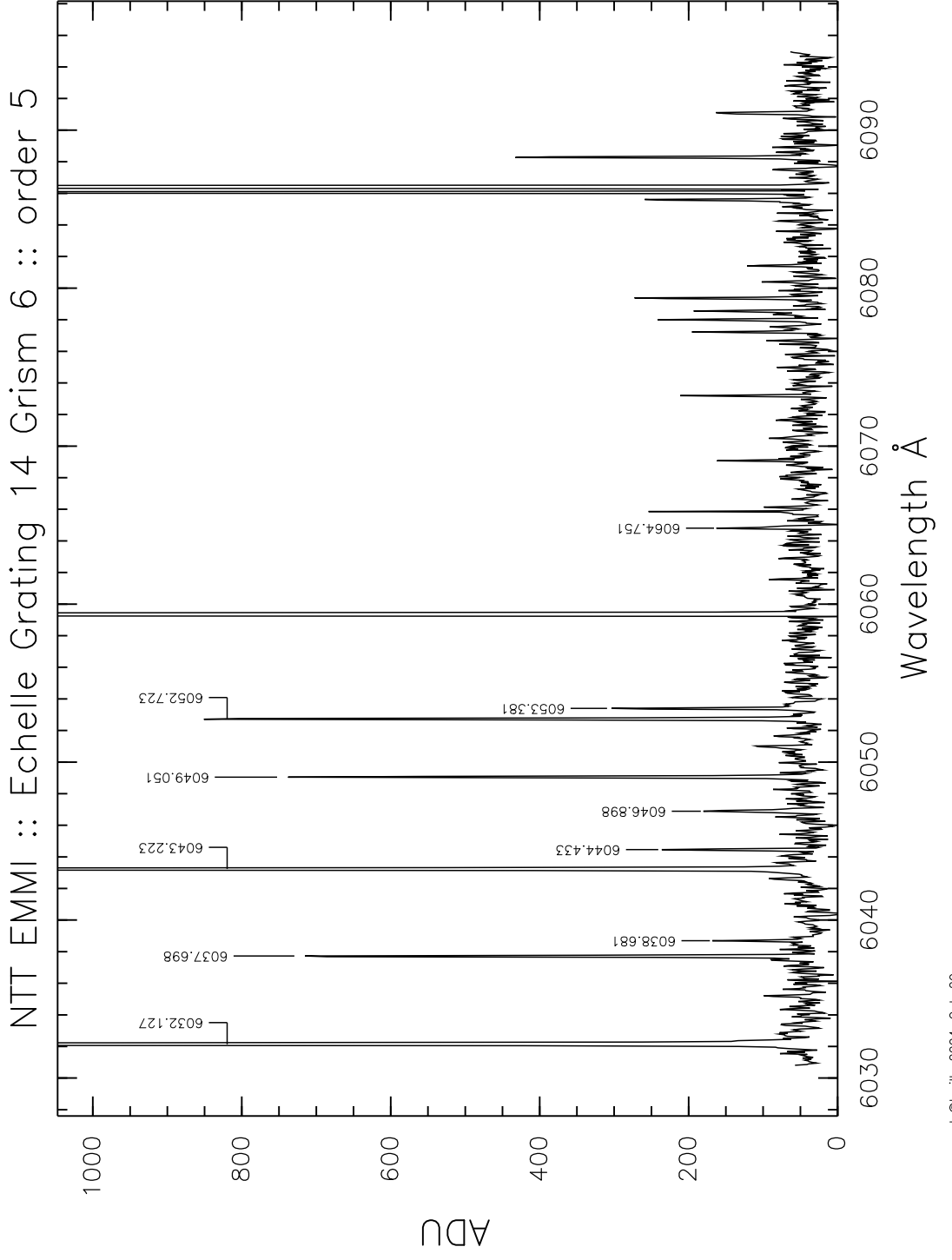


NTT EMMI :: Echelle Grating 14 Grism 6 :: order 3

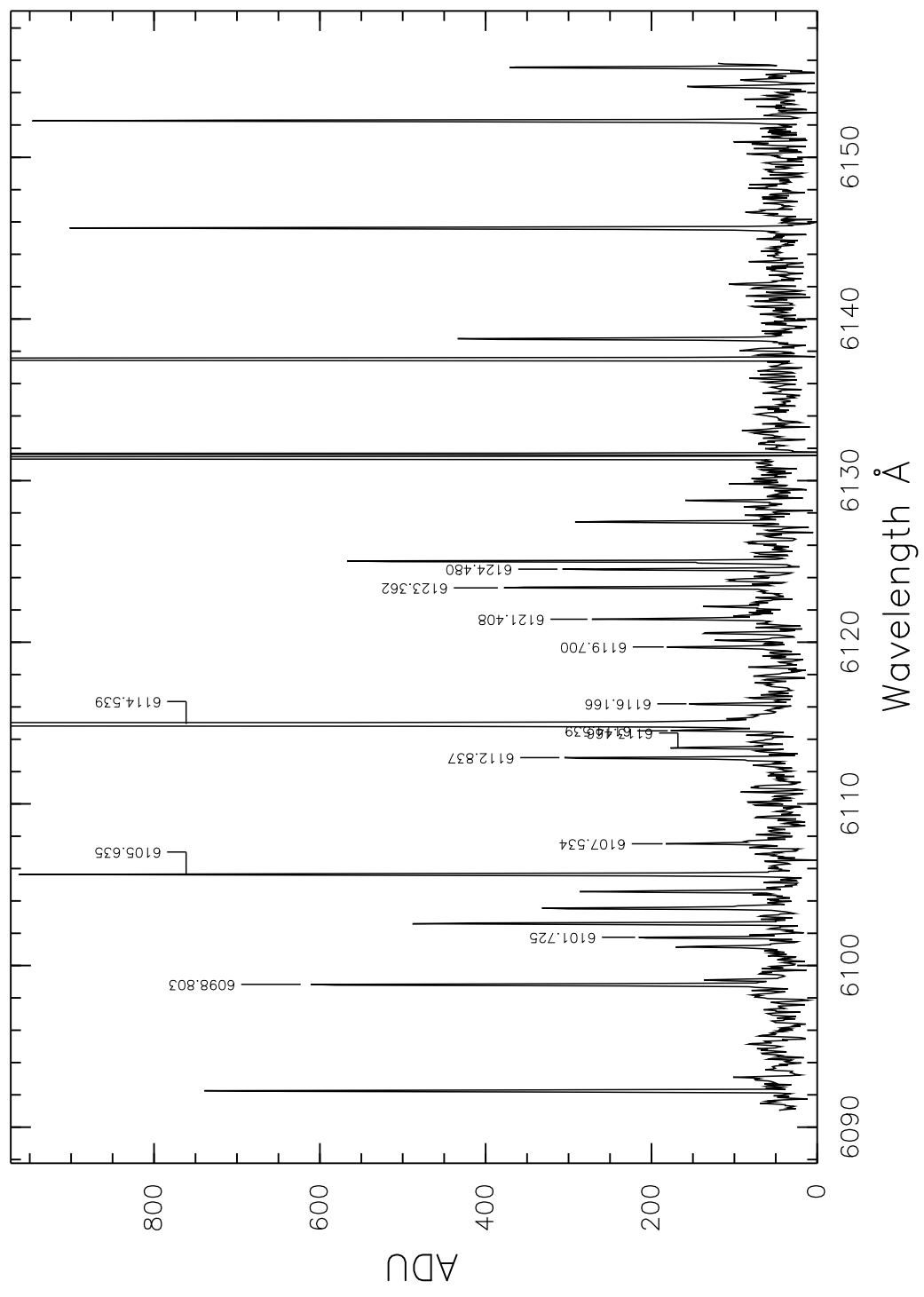


NTT EMMI :: Echelle Grating 14 Grism 6 :: order 4

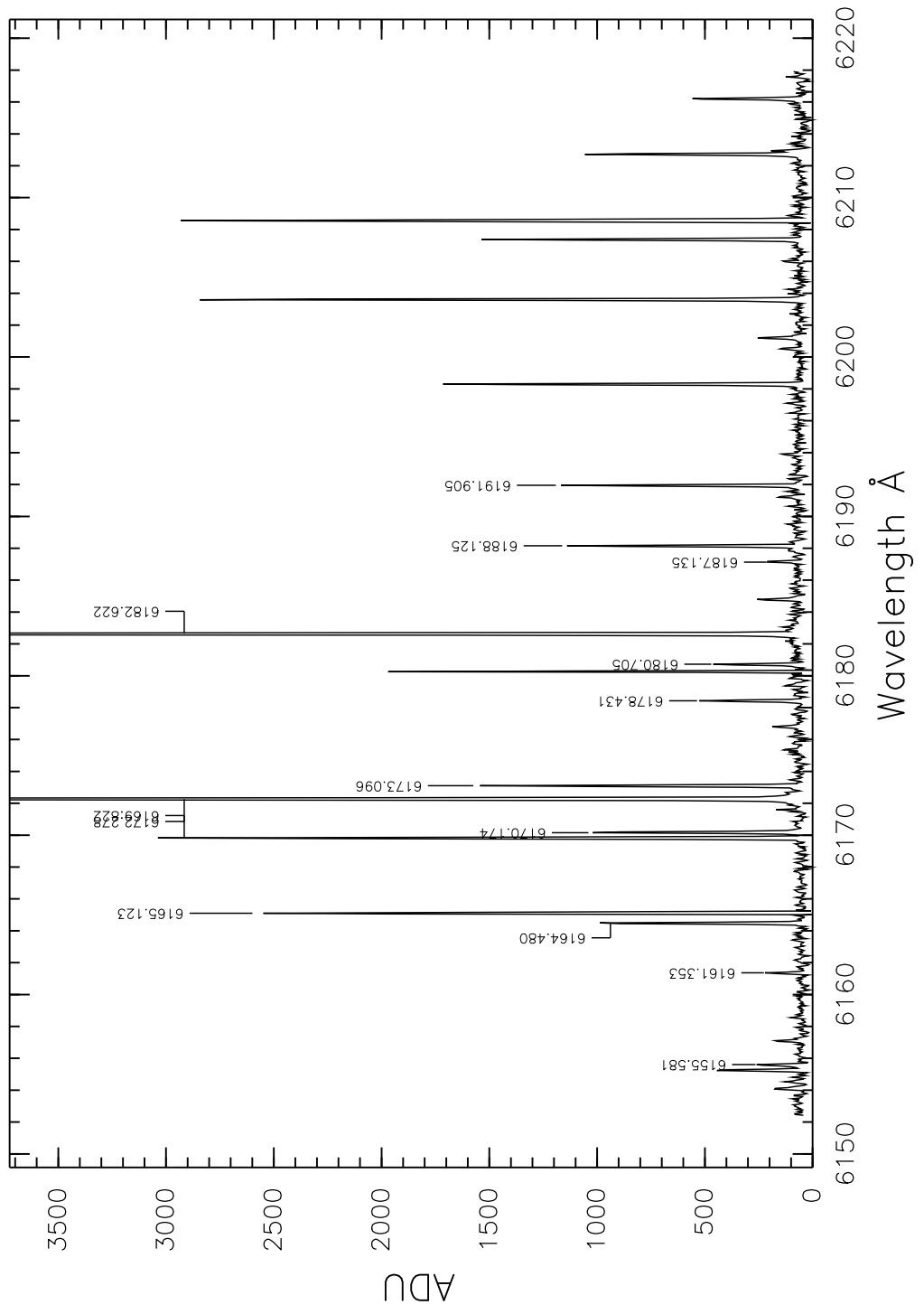




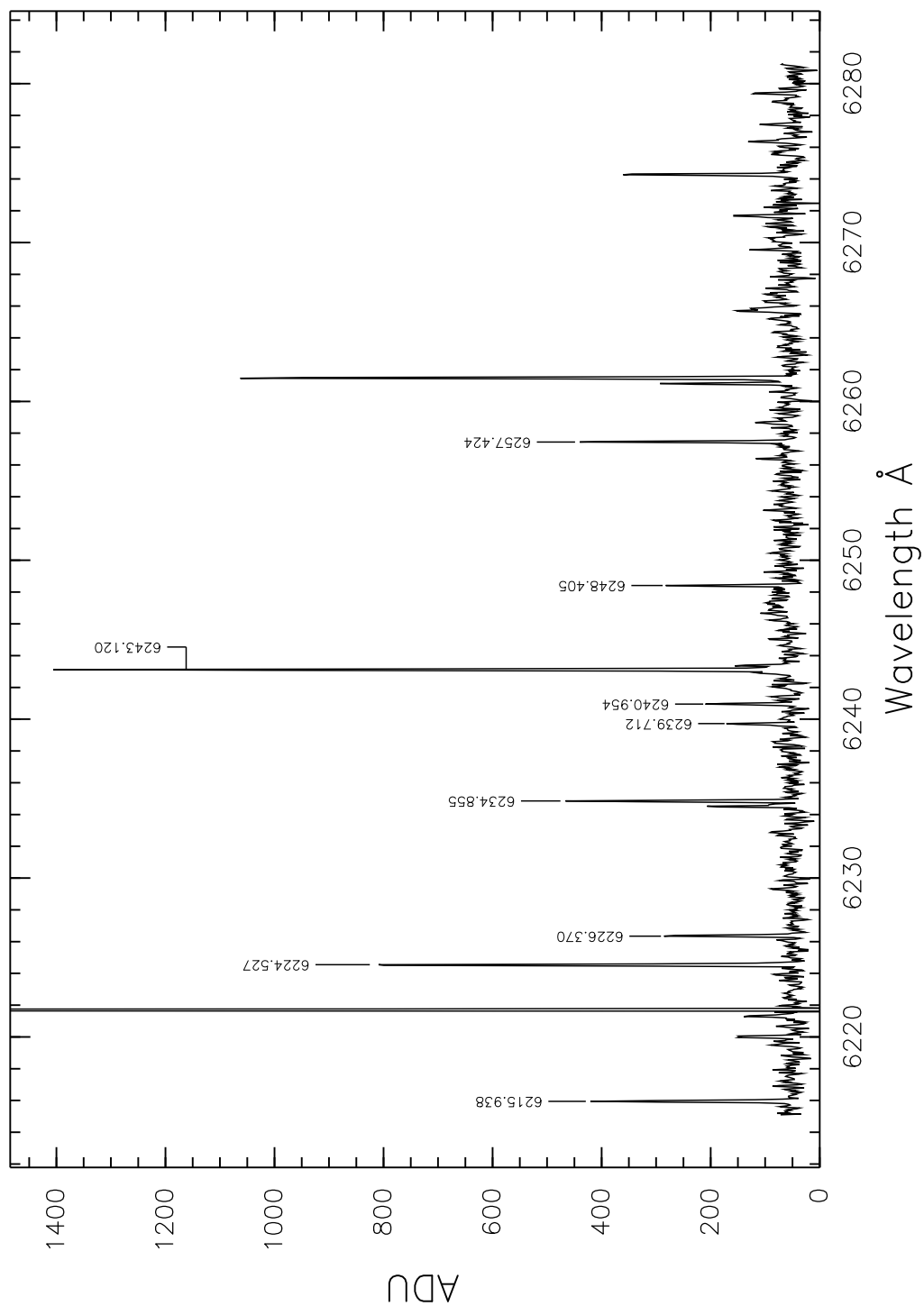
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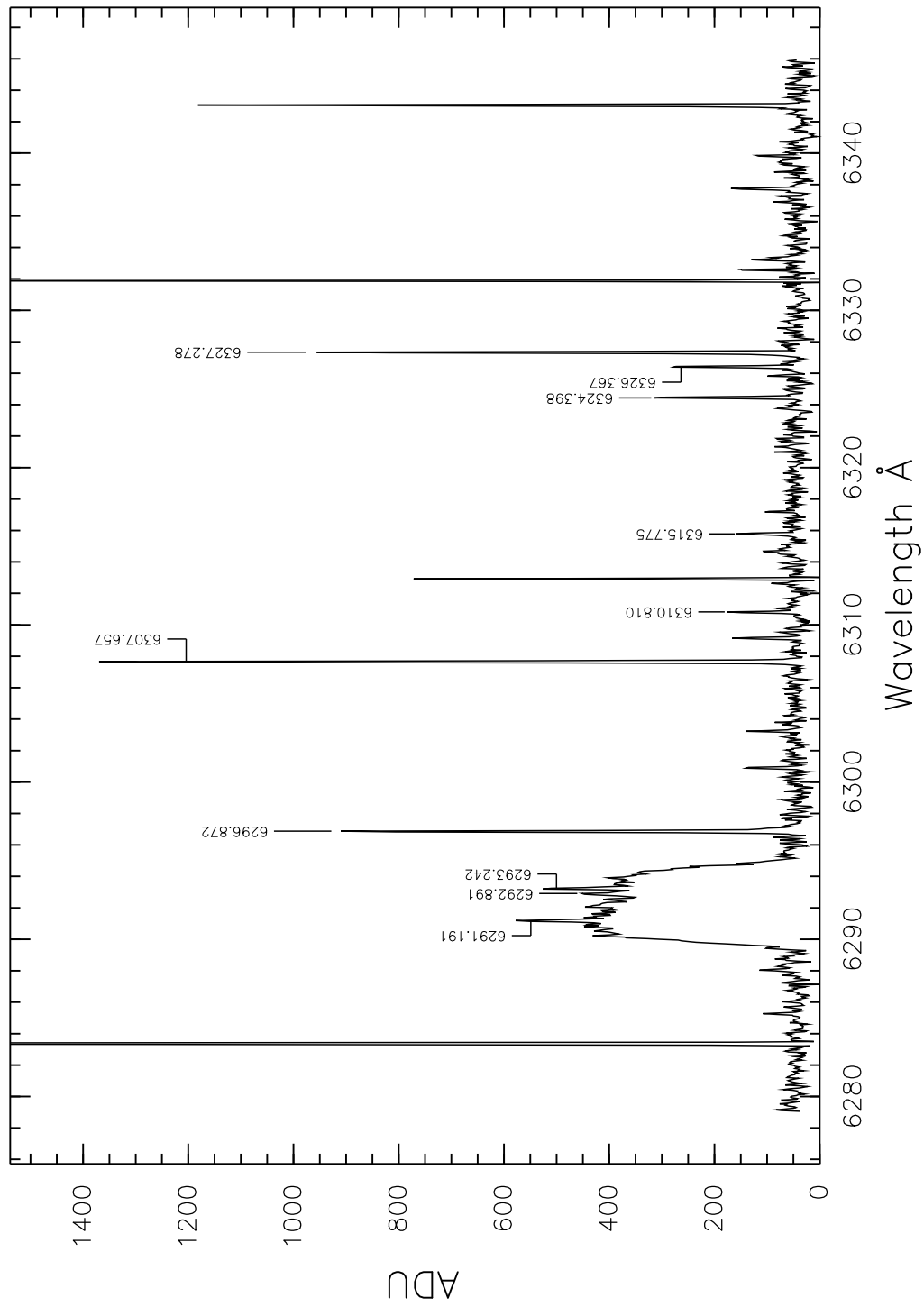
NTT EMMI :: Echelle Grating 14 Grism 6 :: order 7

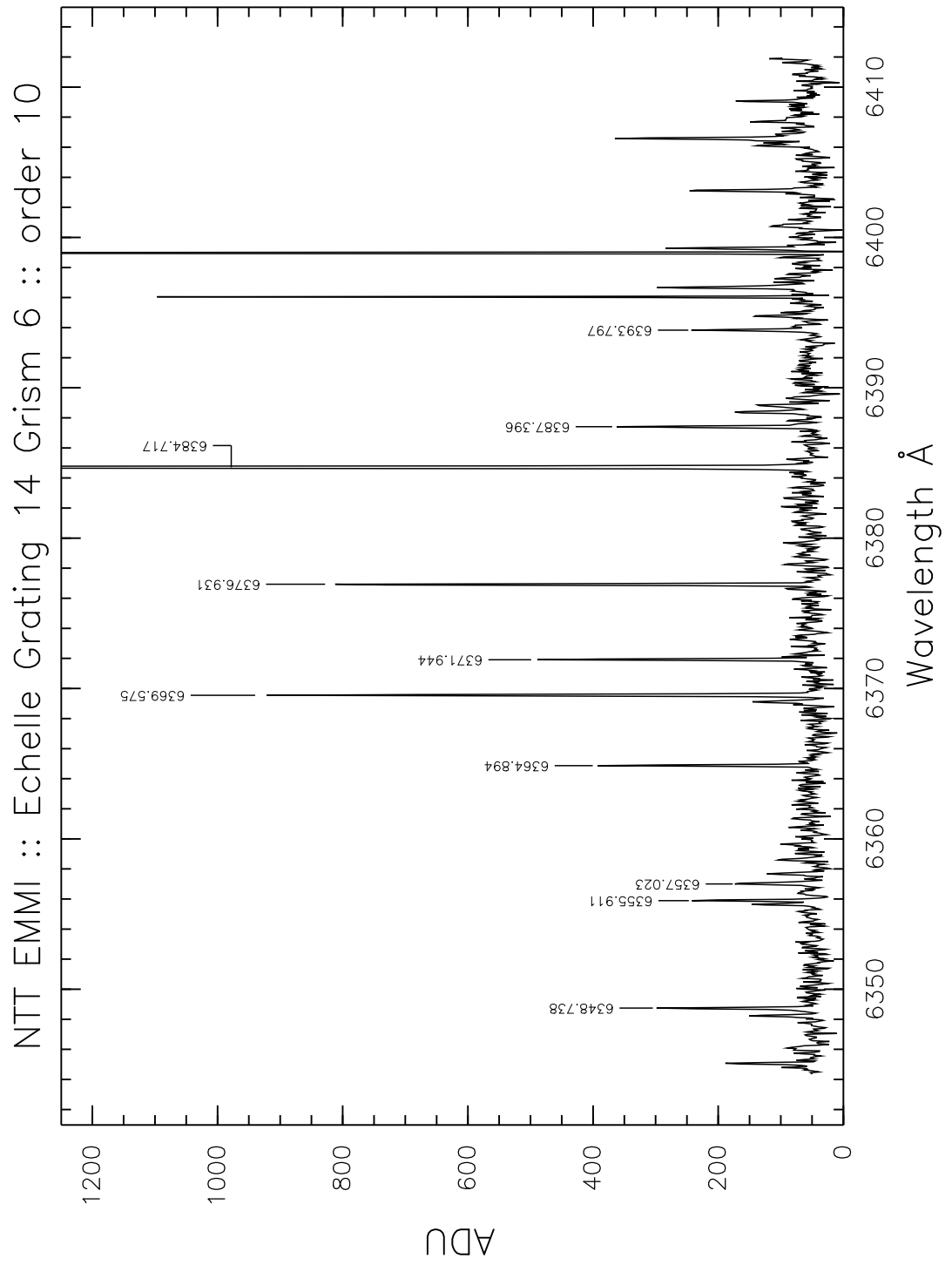


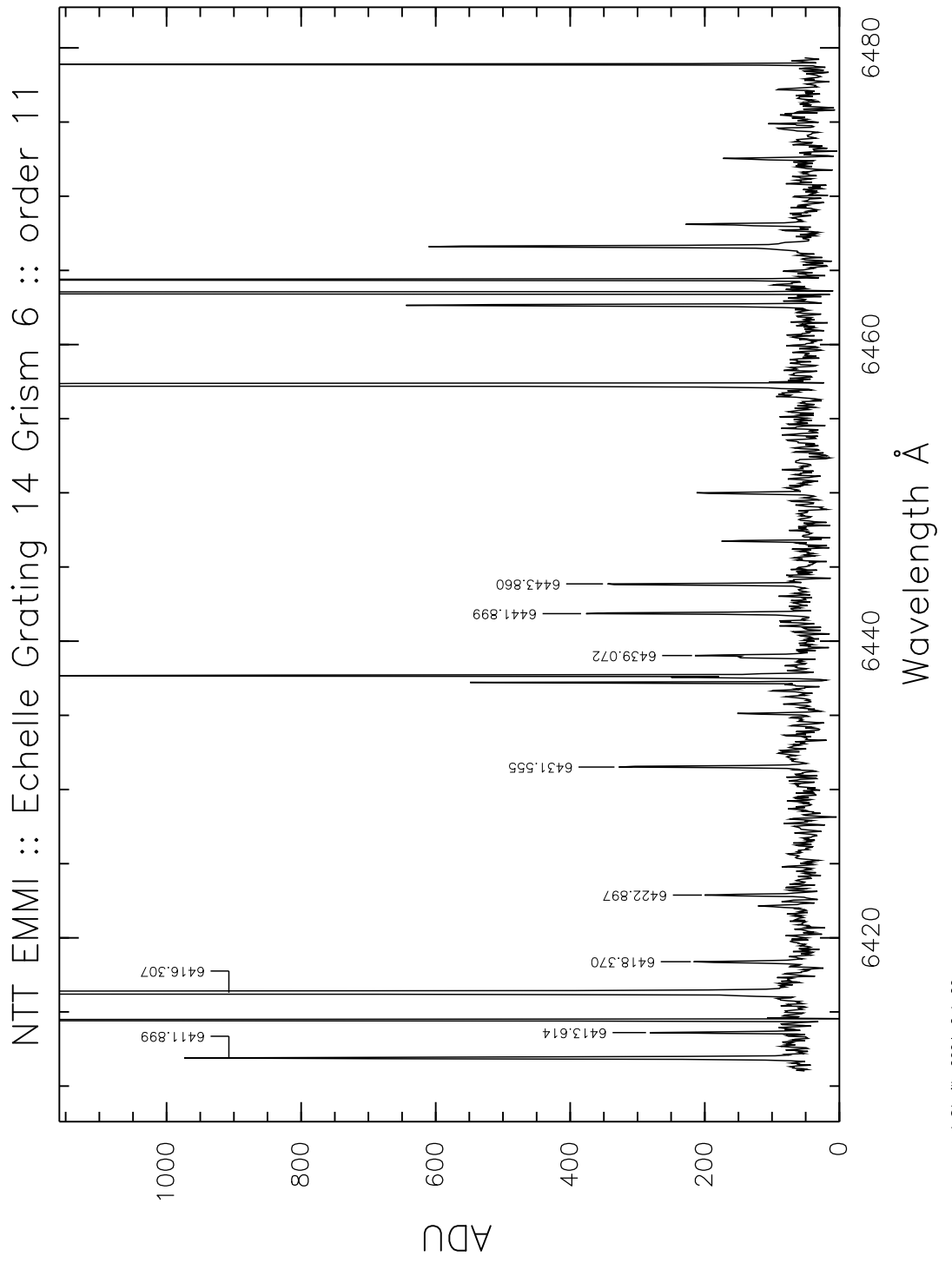
NTT EMMI :: Echelle Grating 14 Grism 6 :: order 8

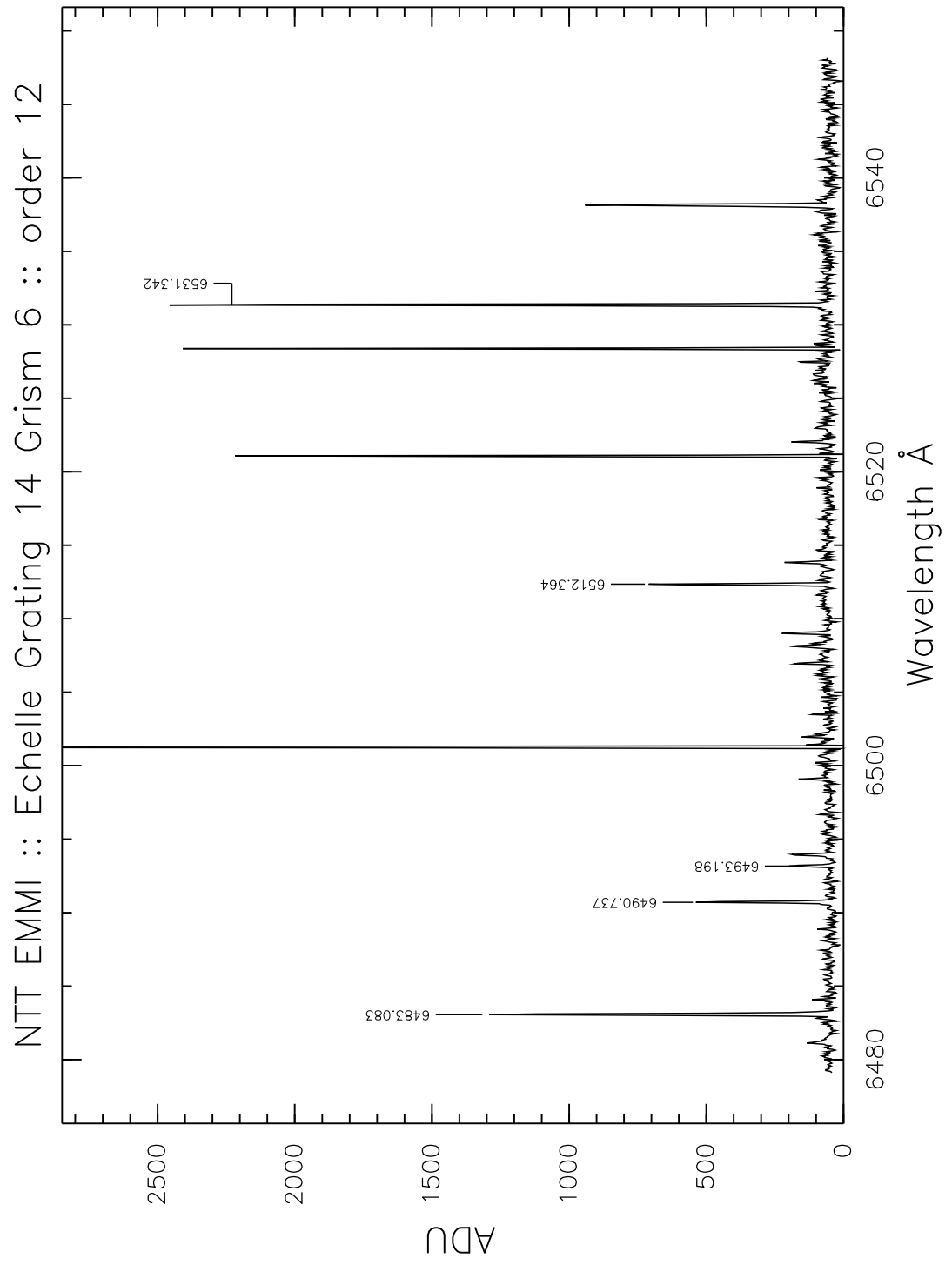


NTT EMMI :: Echelle Grating 14 Grism 6 :: order 9

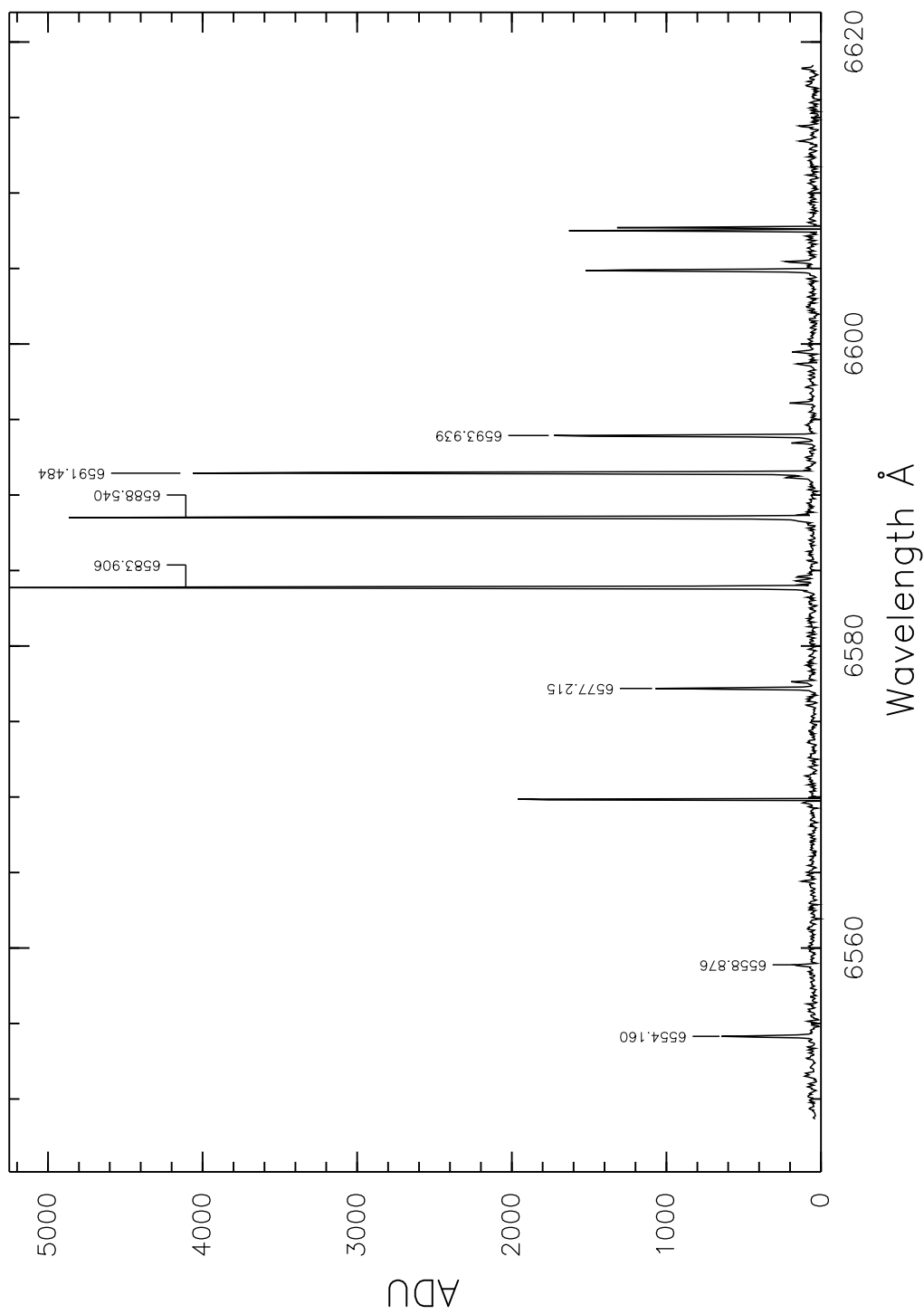


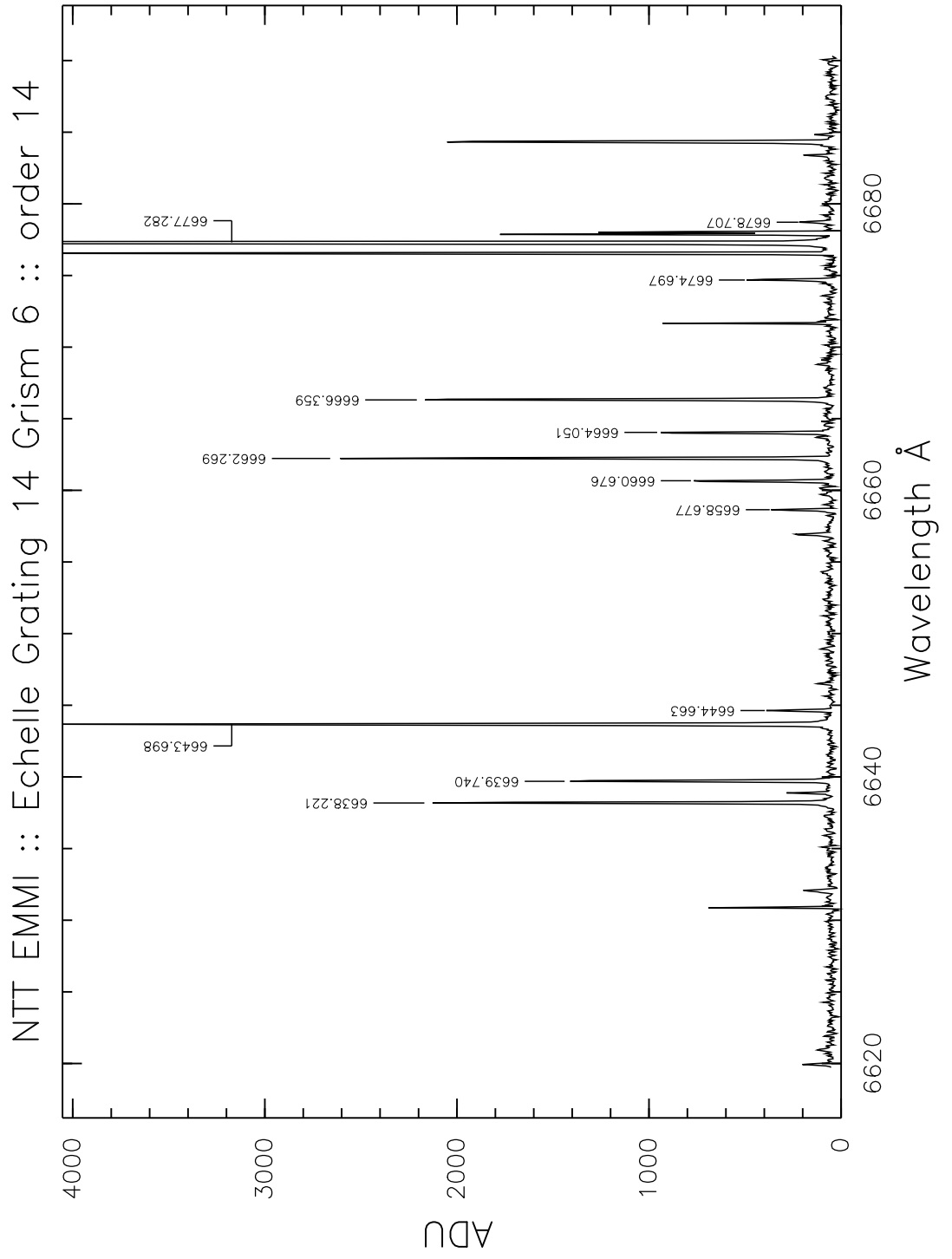


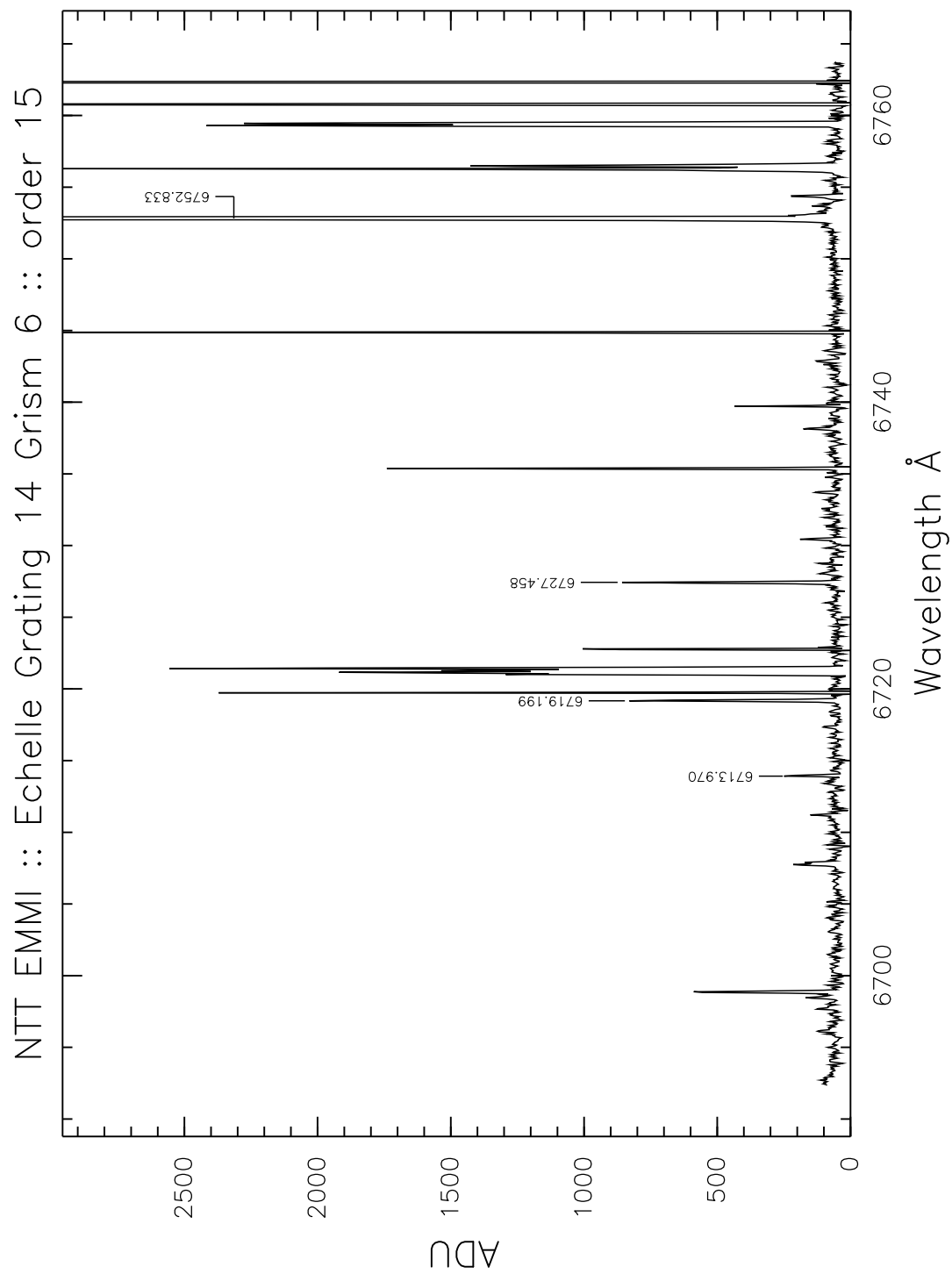




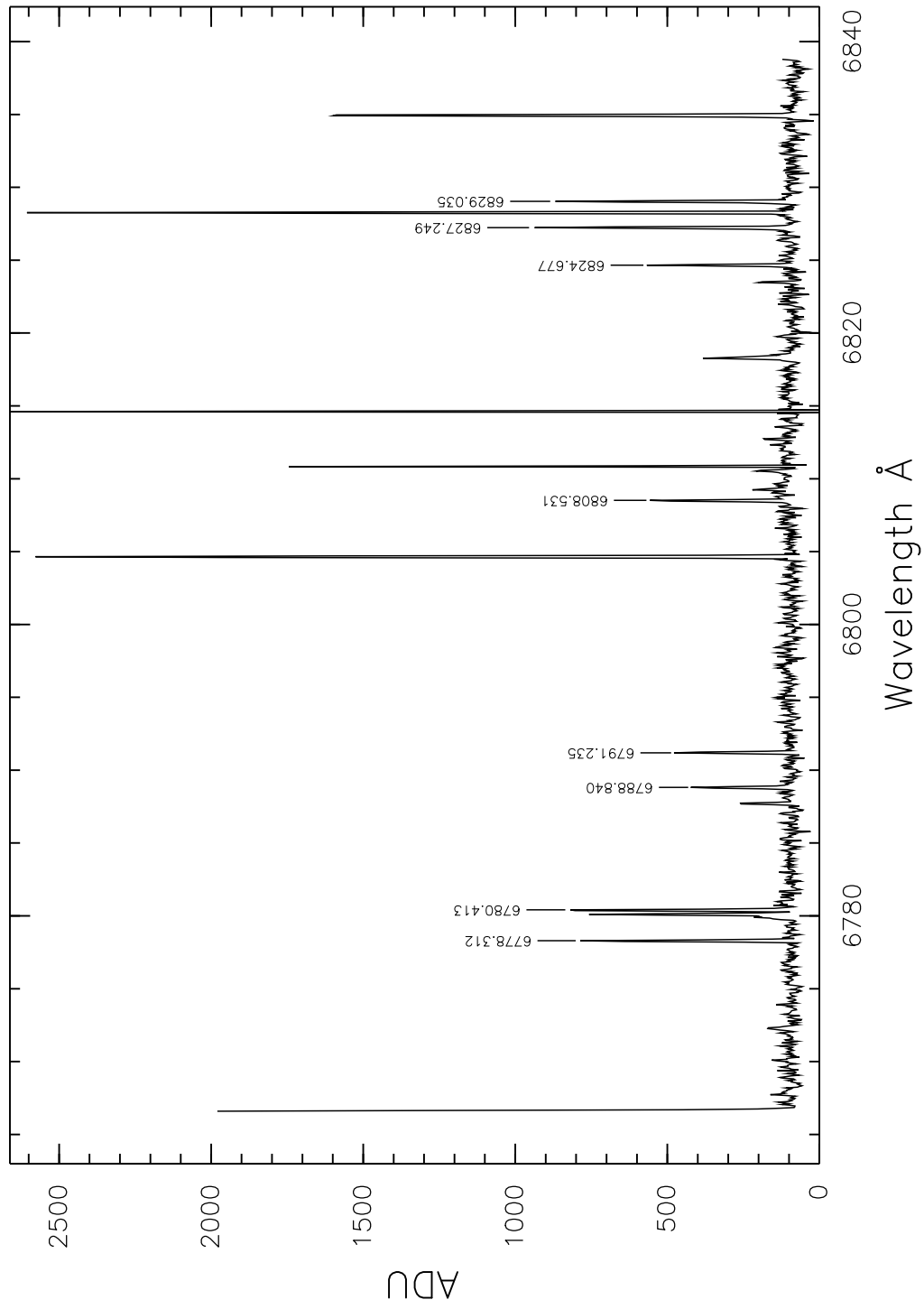
NTT EMMI :: Echelle Grating 14 Grism 6 :: order 13

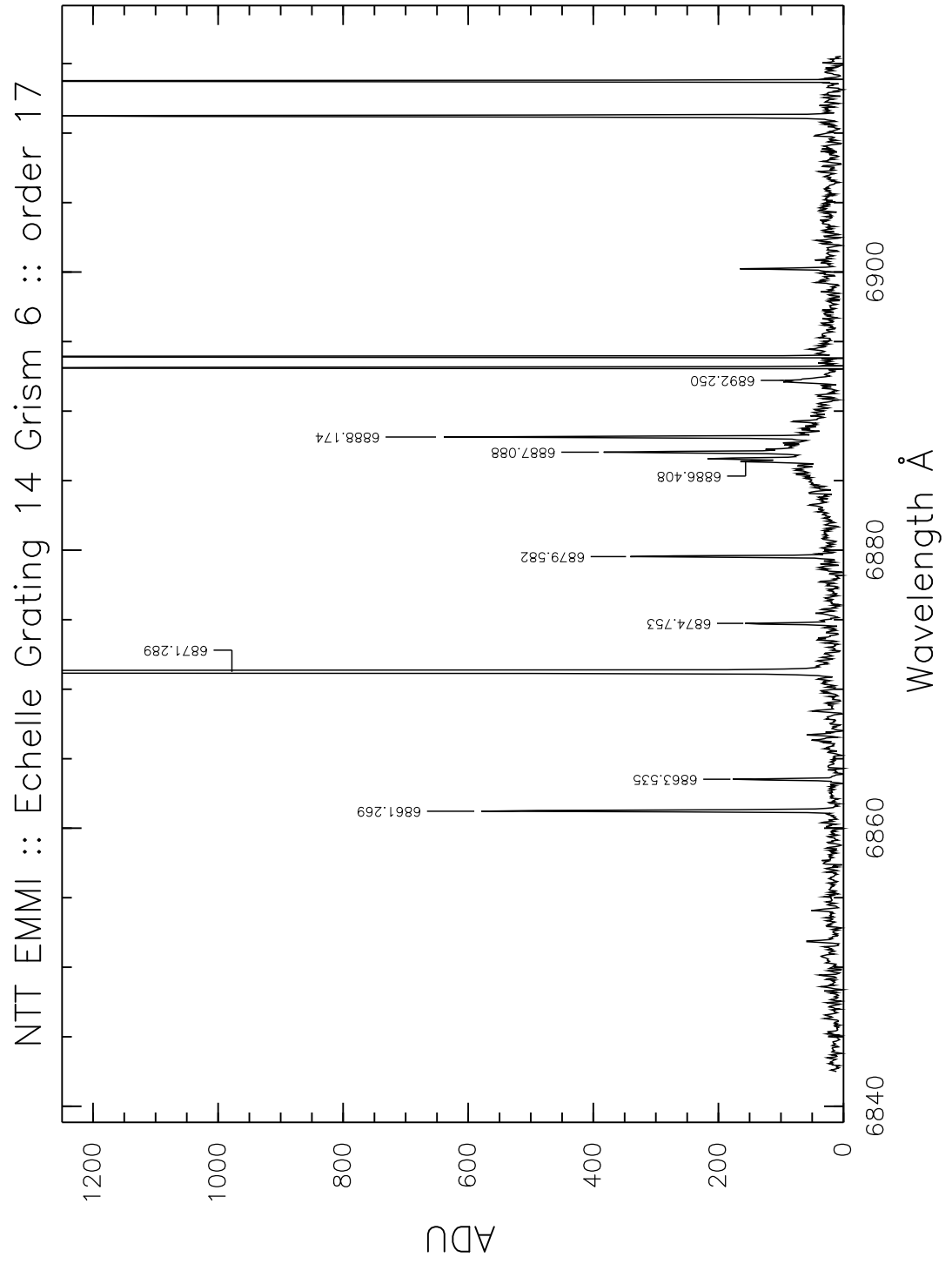




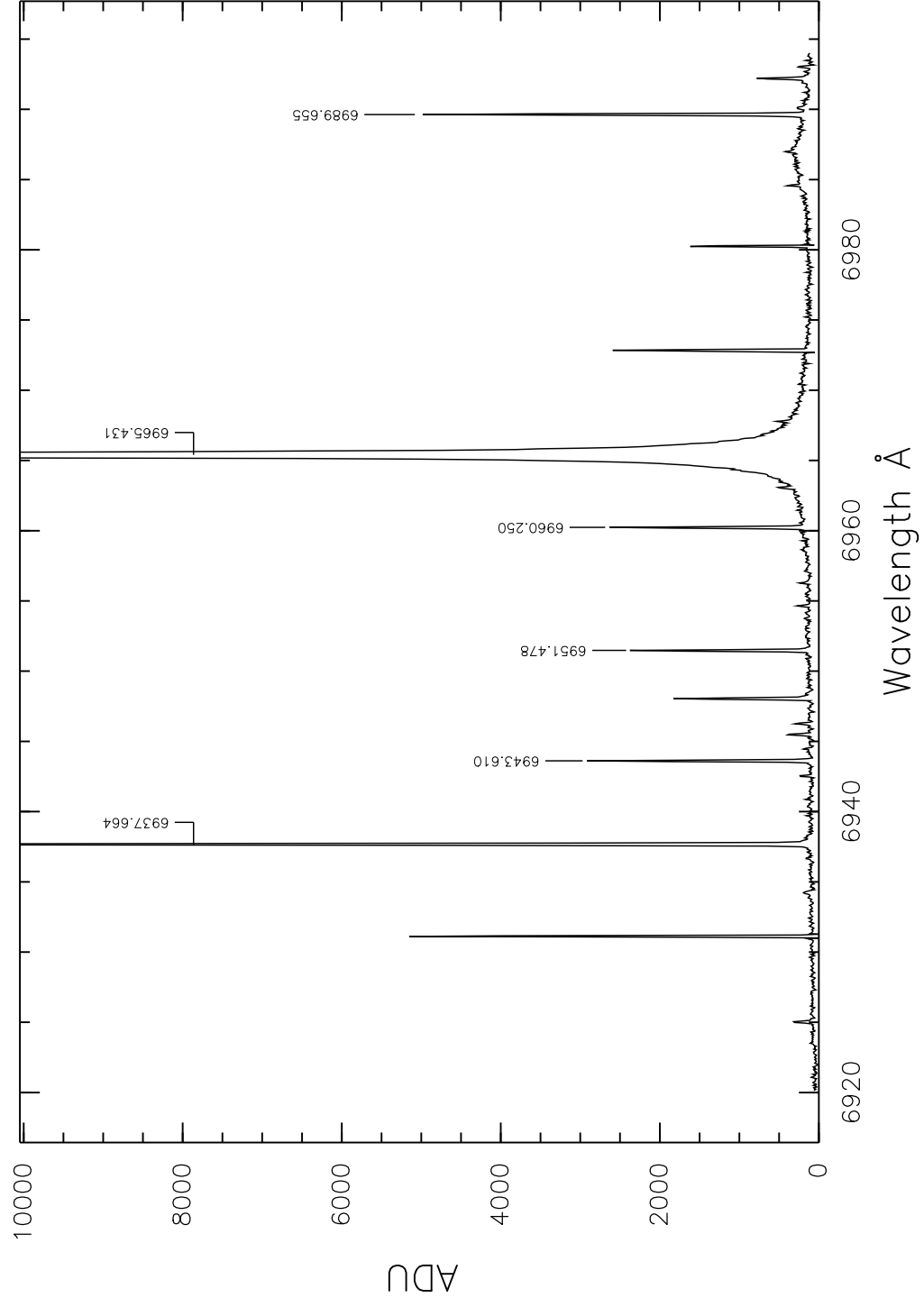


NTT EMMI :: Echelle Grating 14 Grism 6 :: order 16

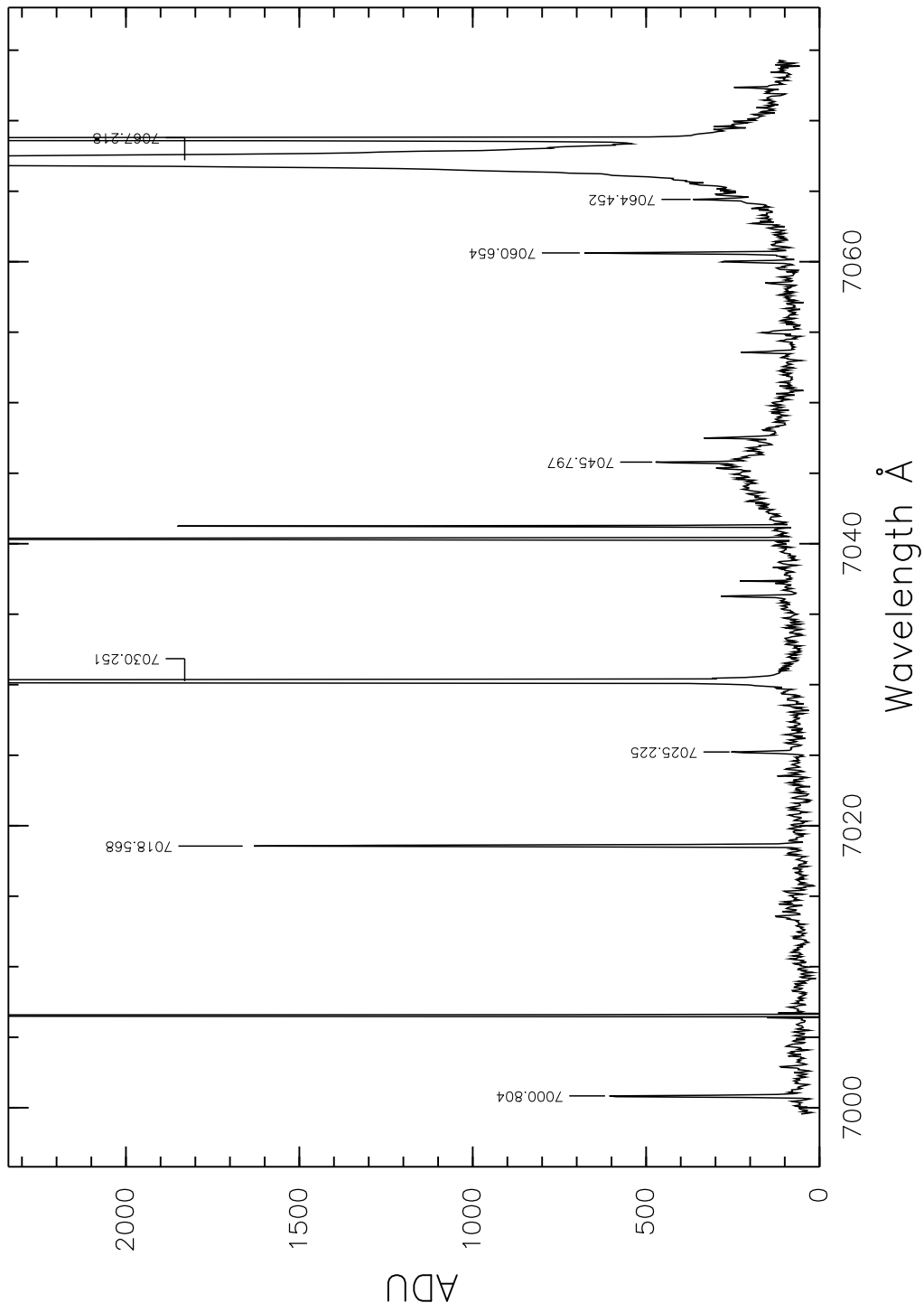




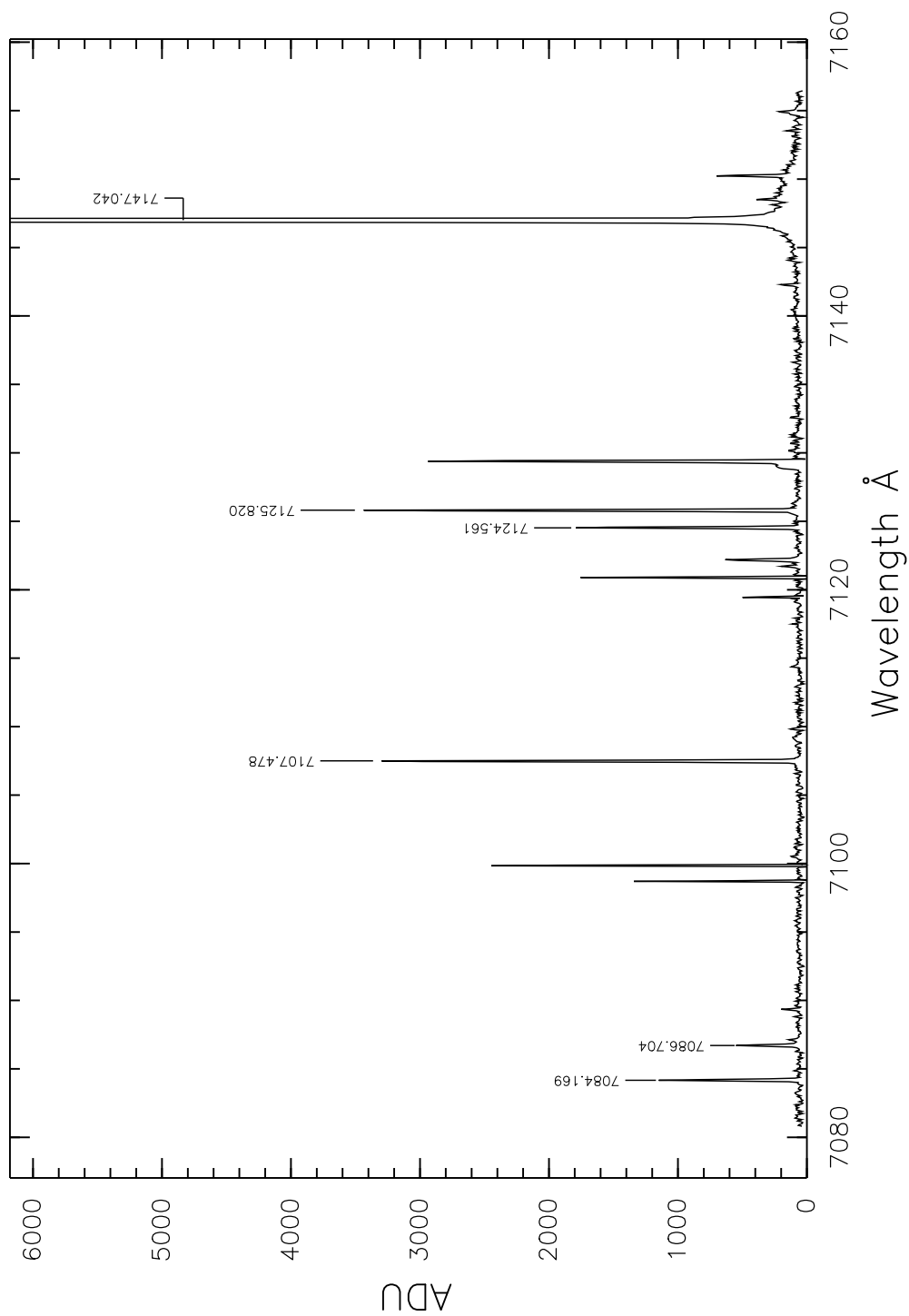
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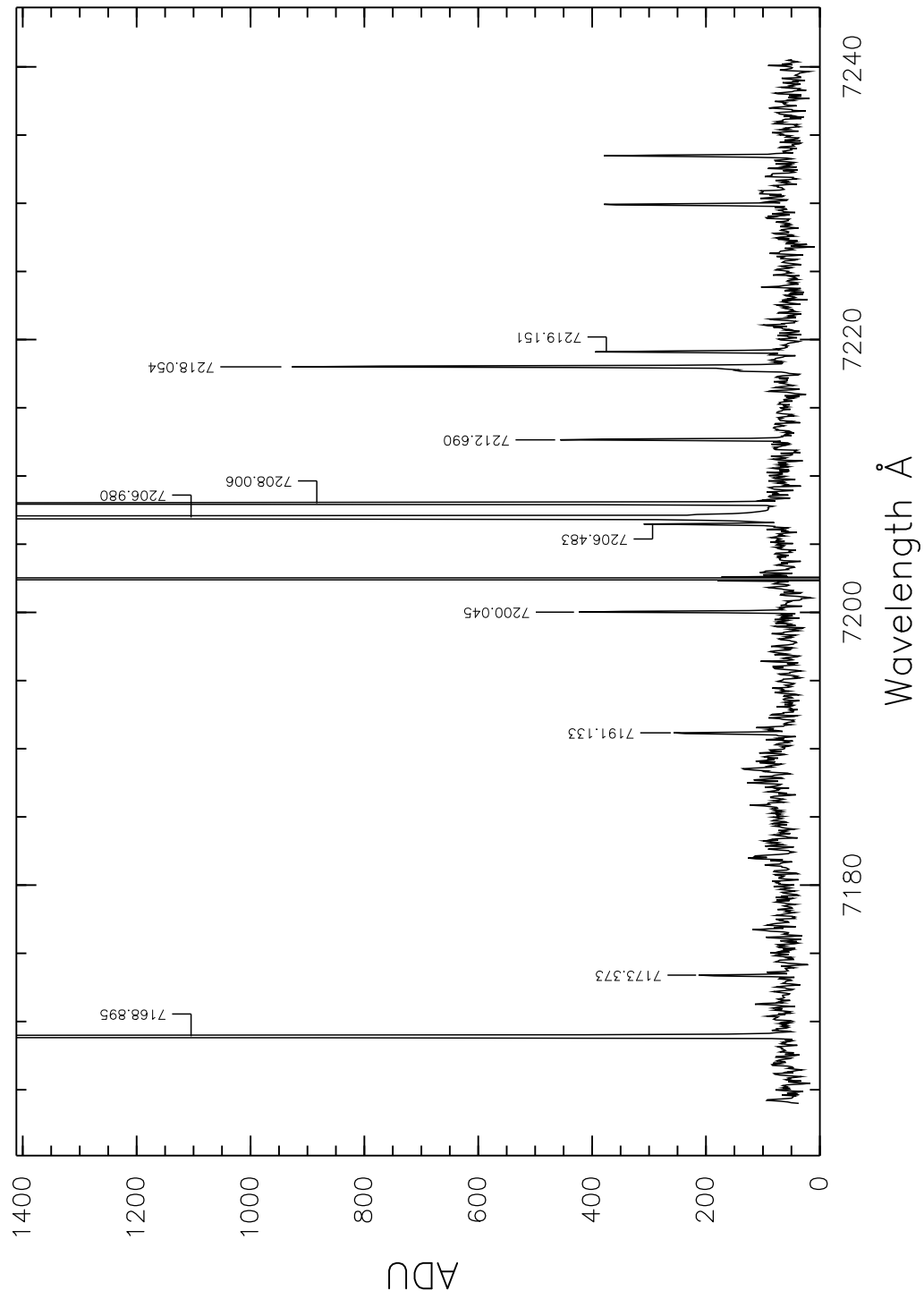
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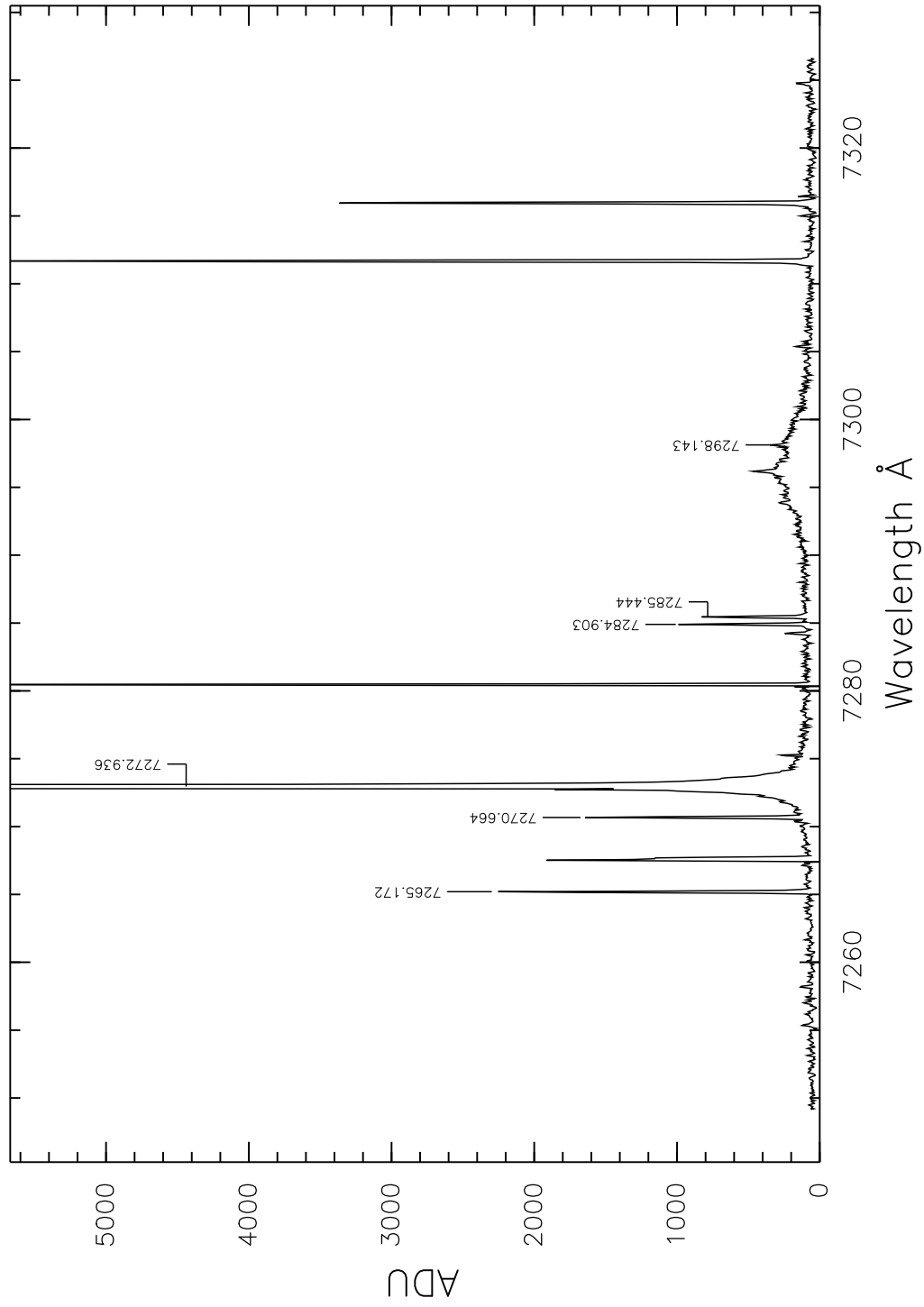
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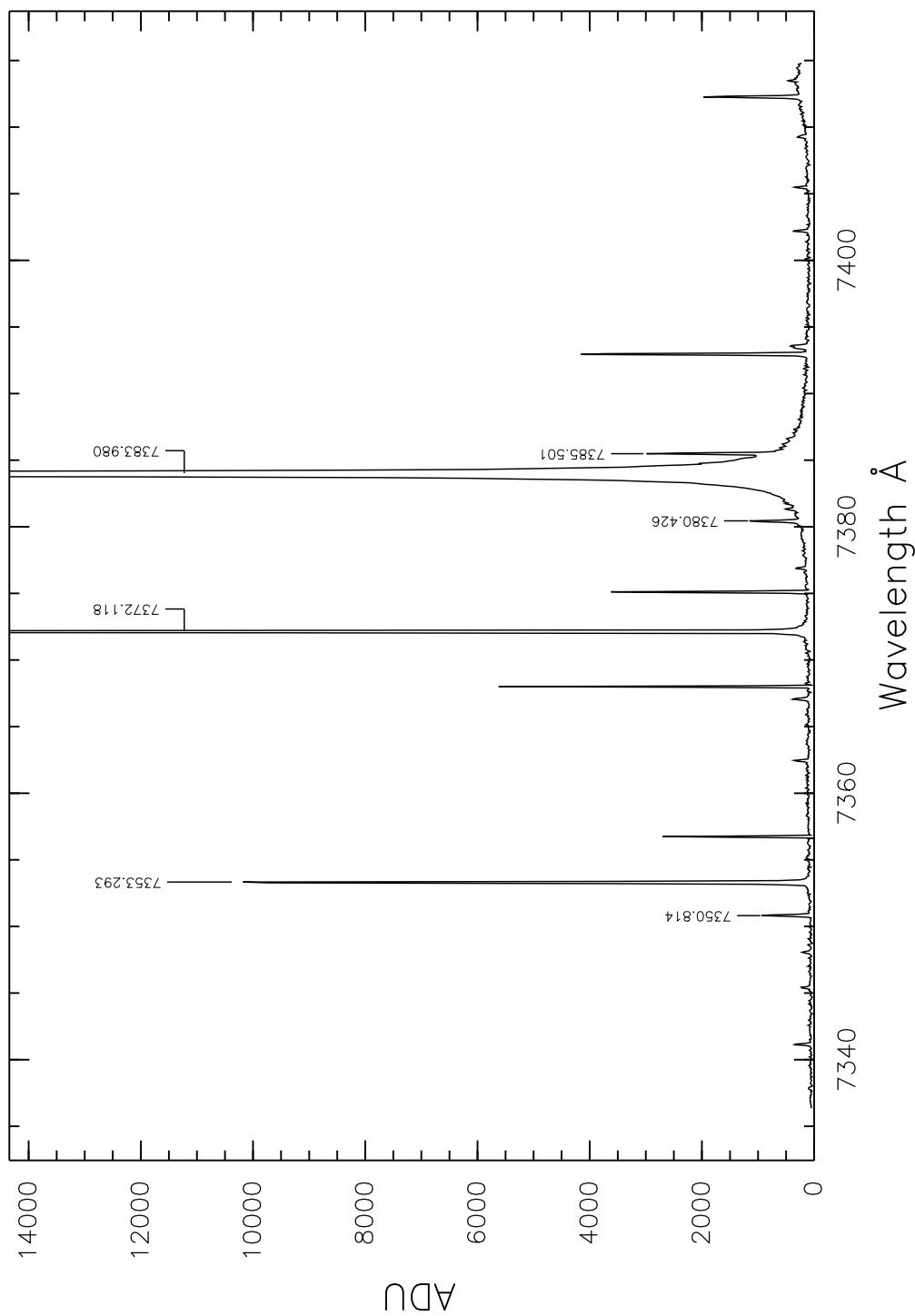
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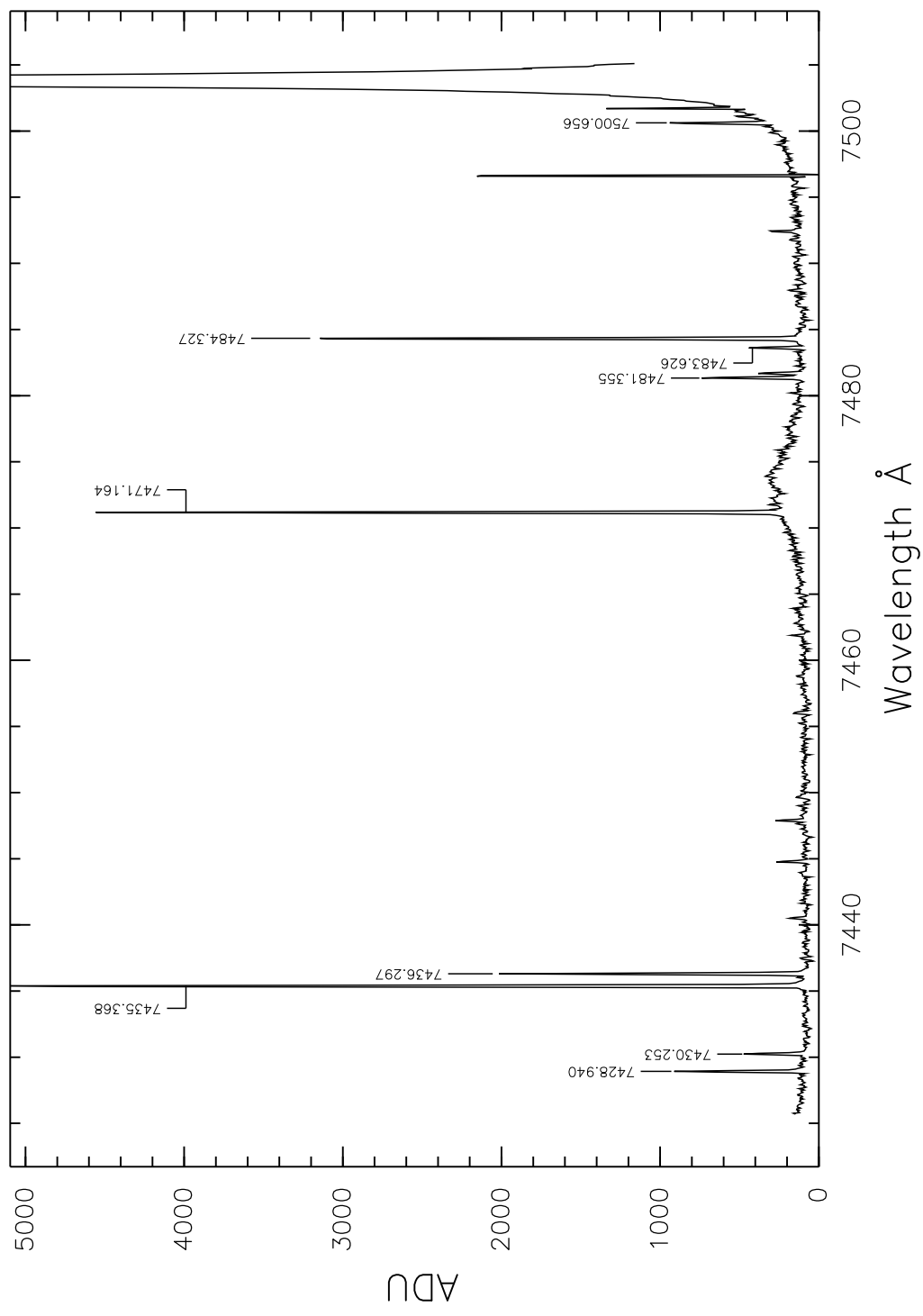
NTT EMMI :: Echelle Grating 14 Grism 6 :: order 22



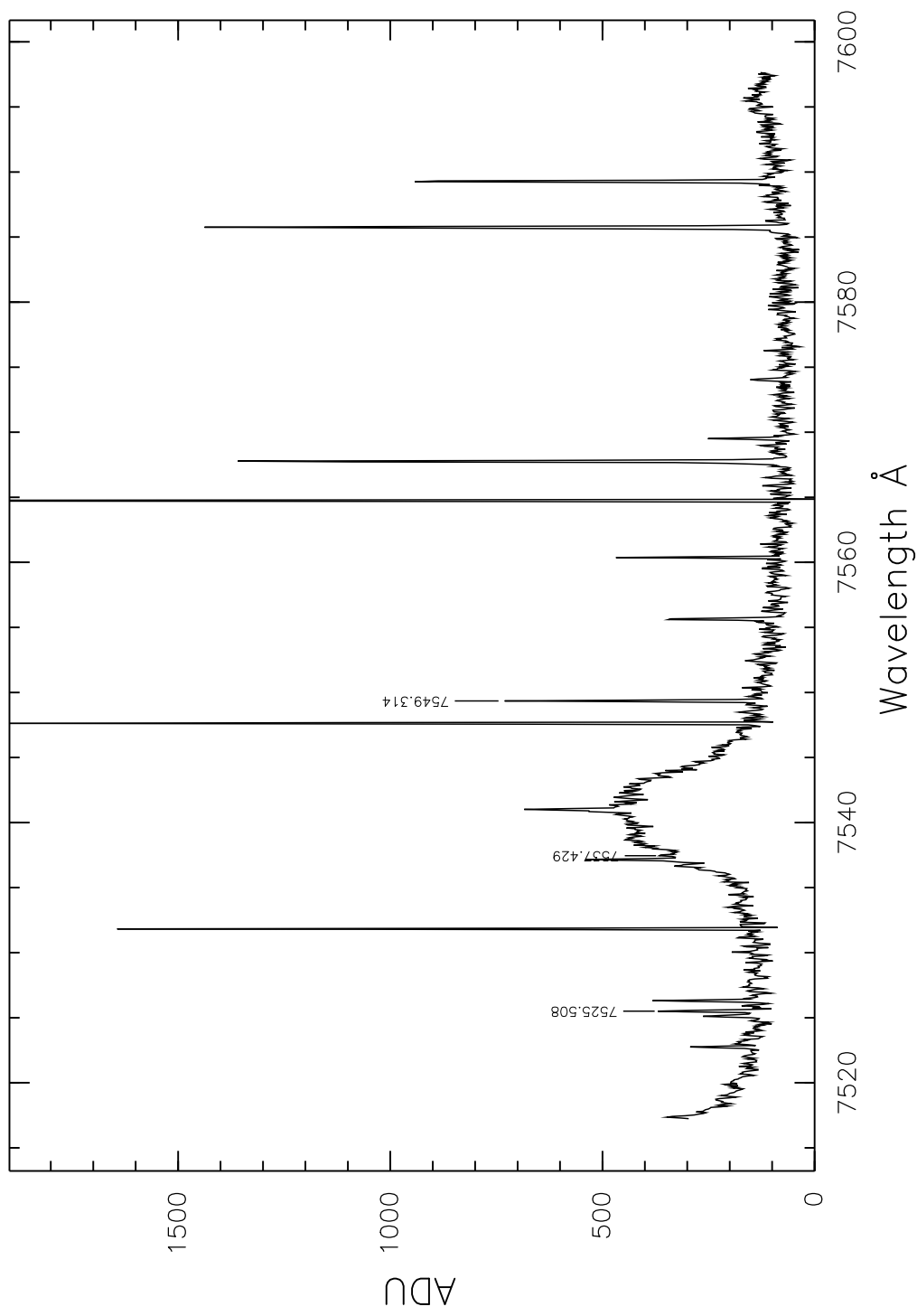
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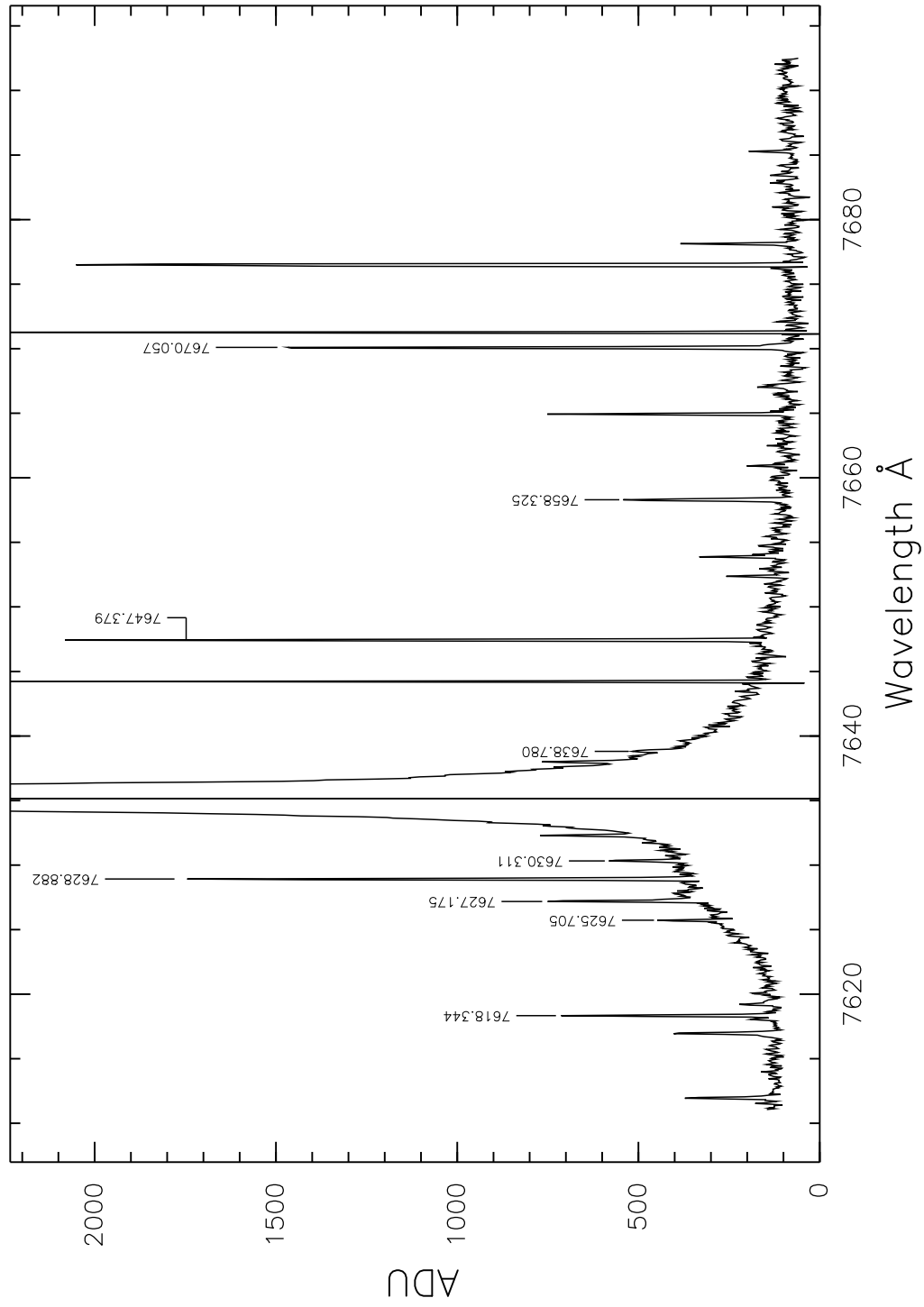
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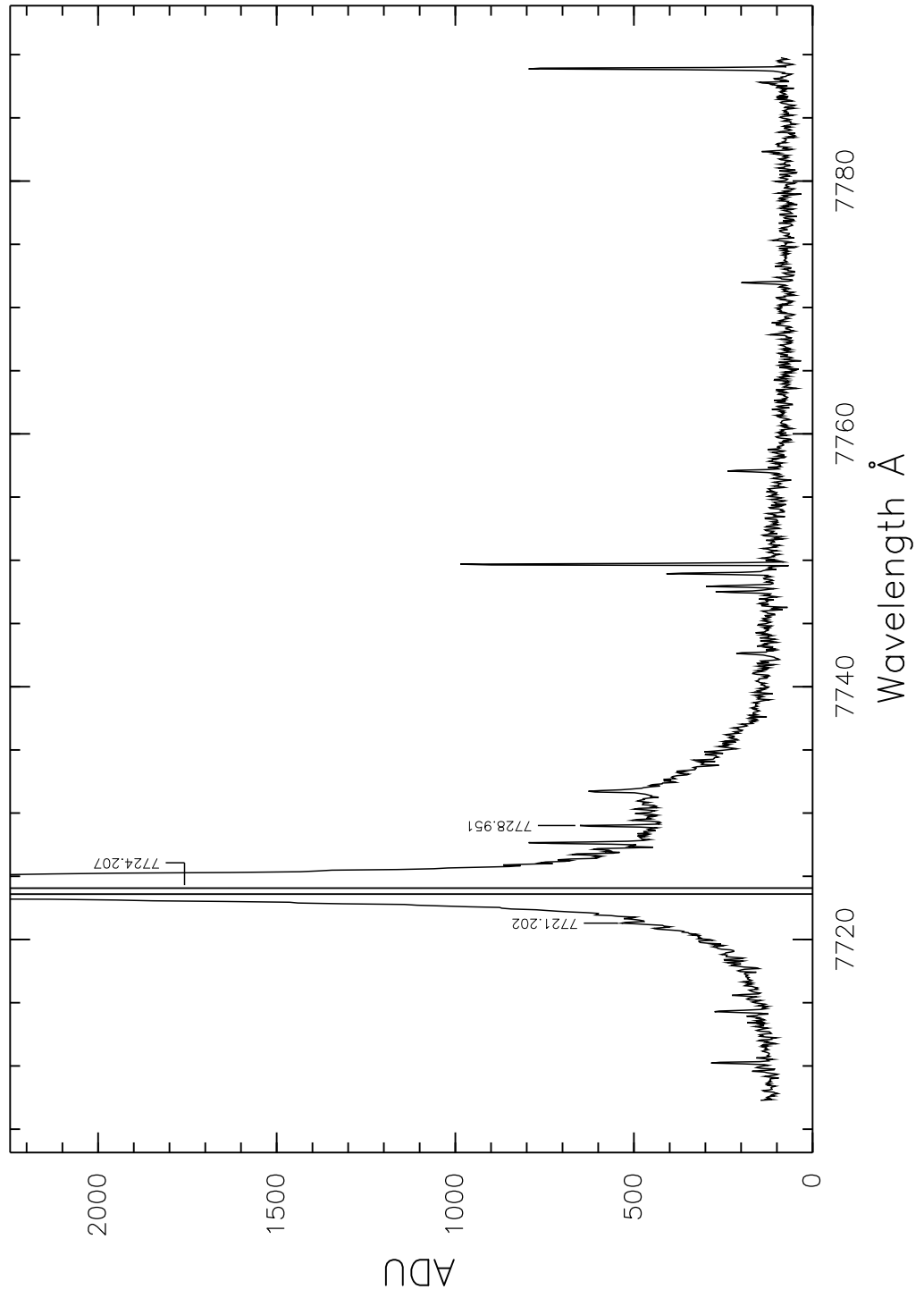
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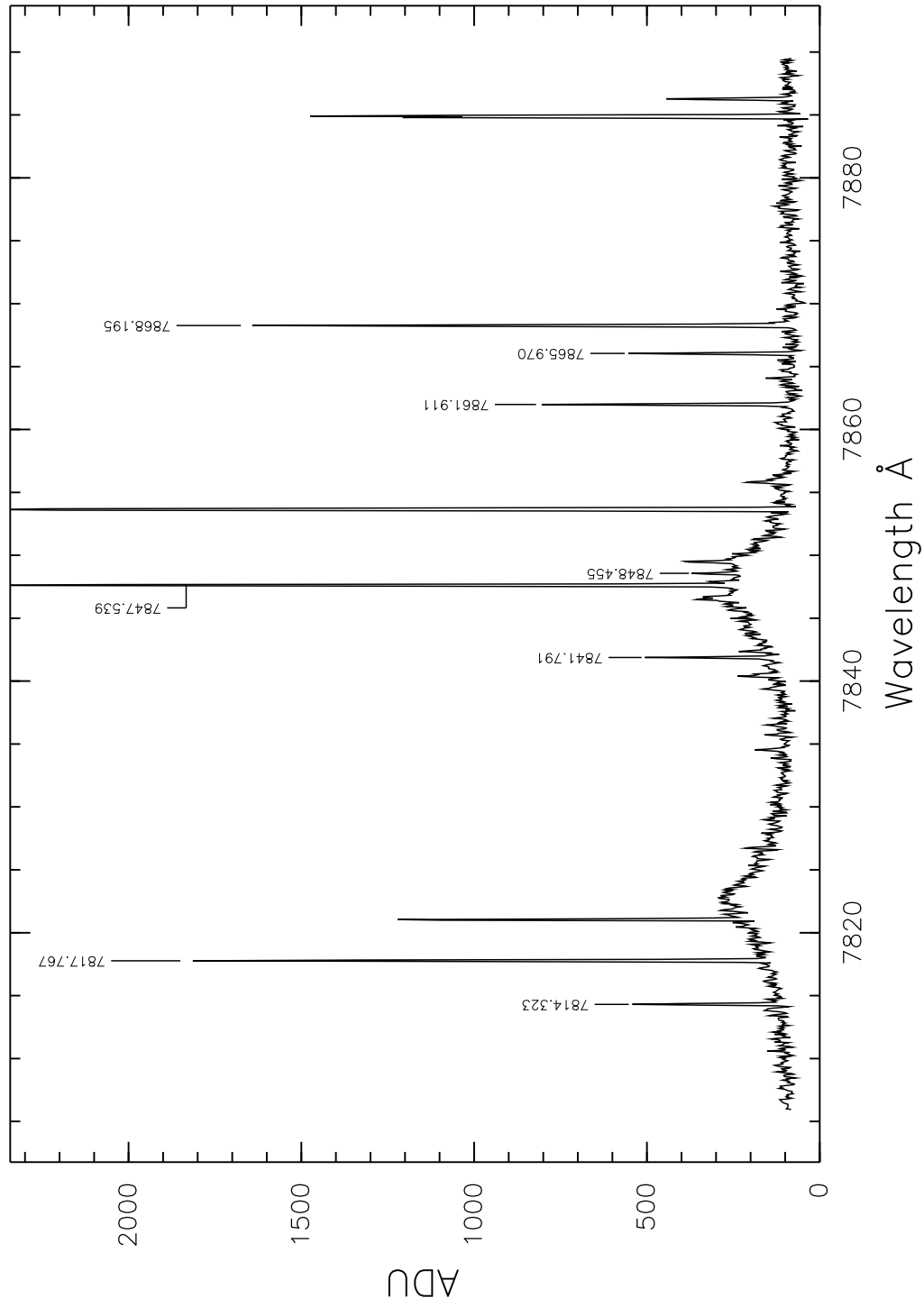
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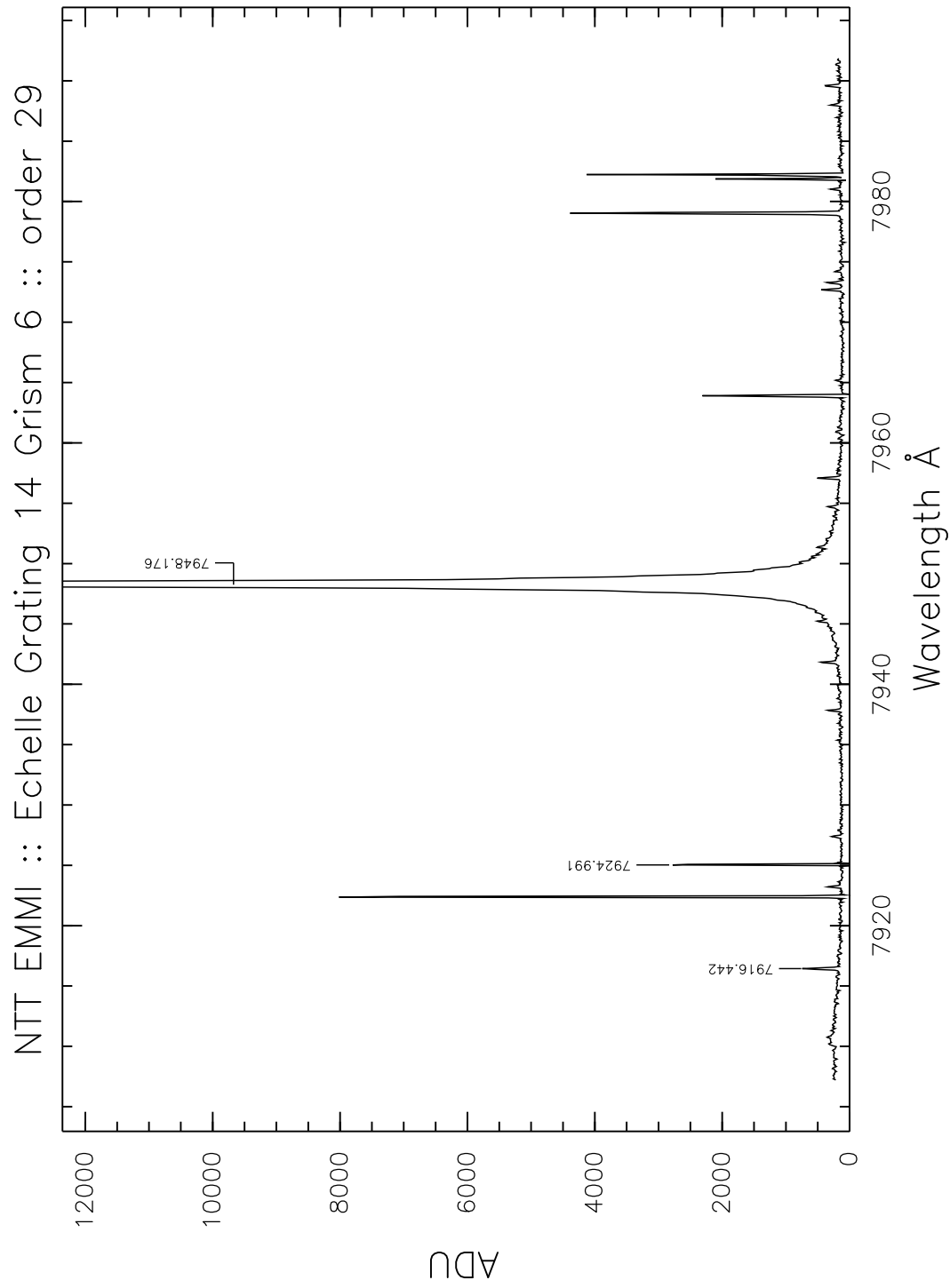


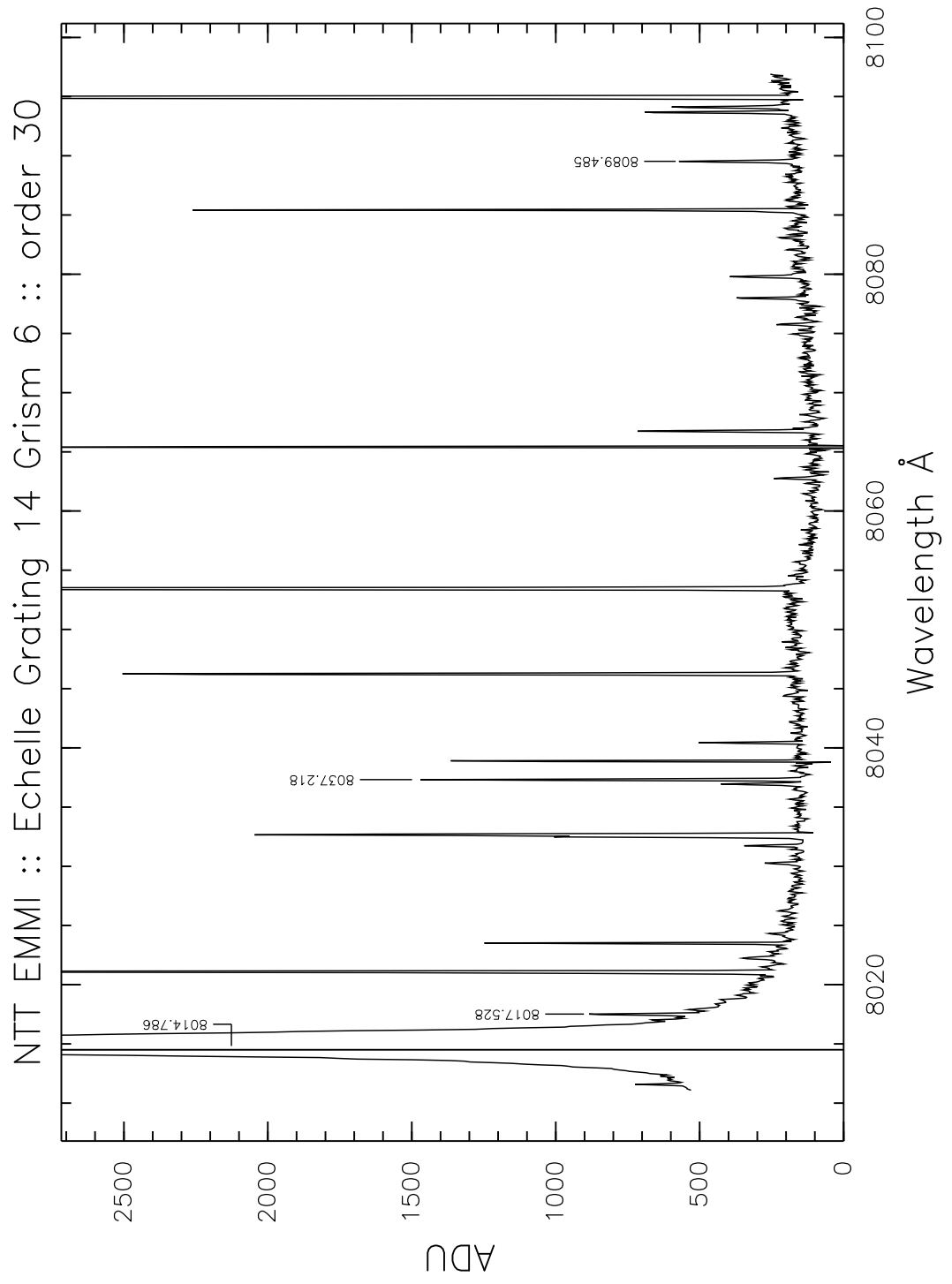
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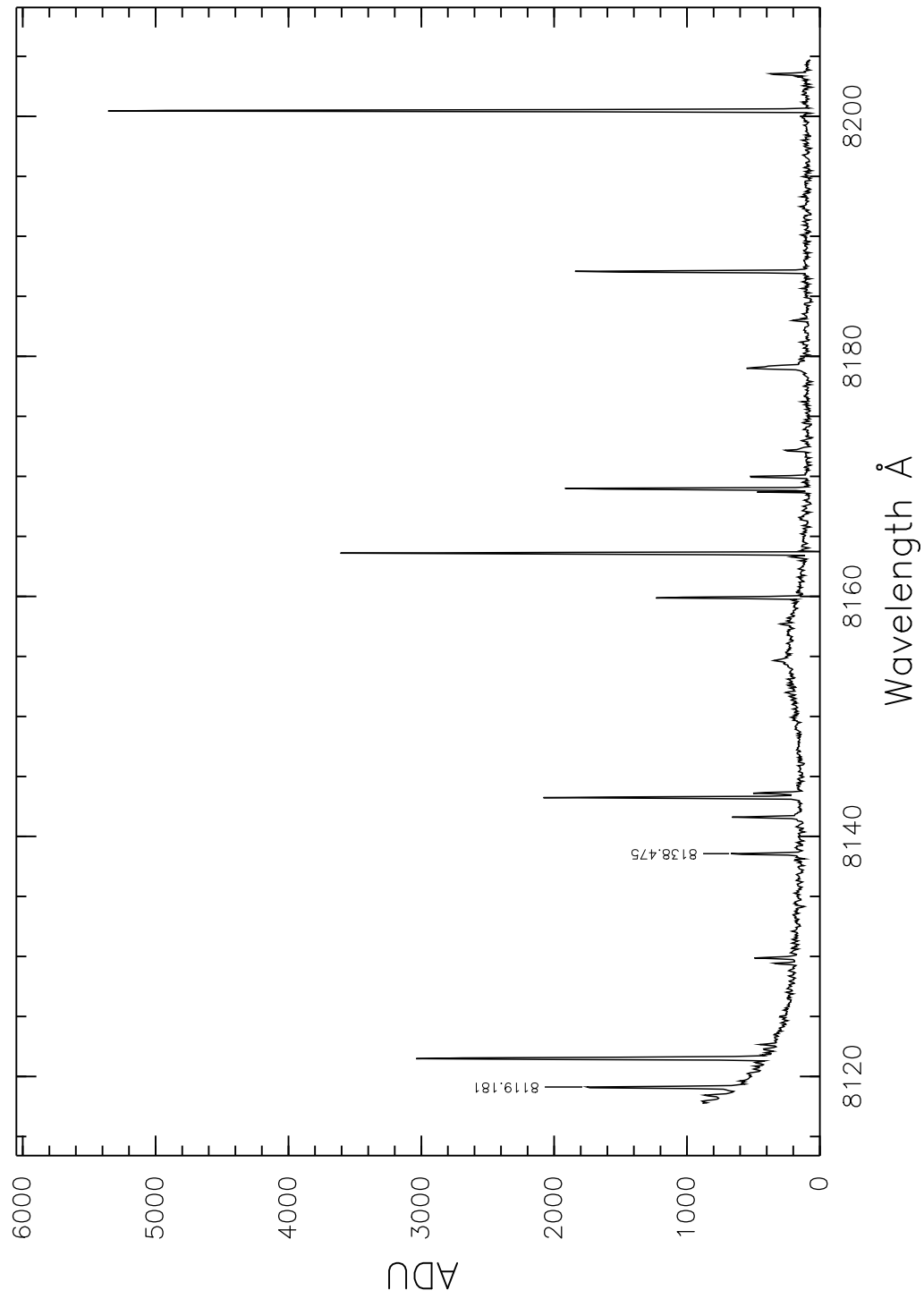
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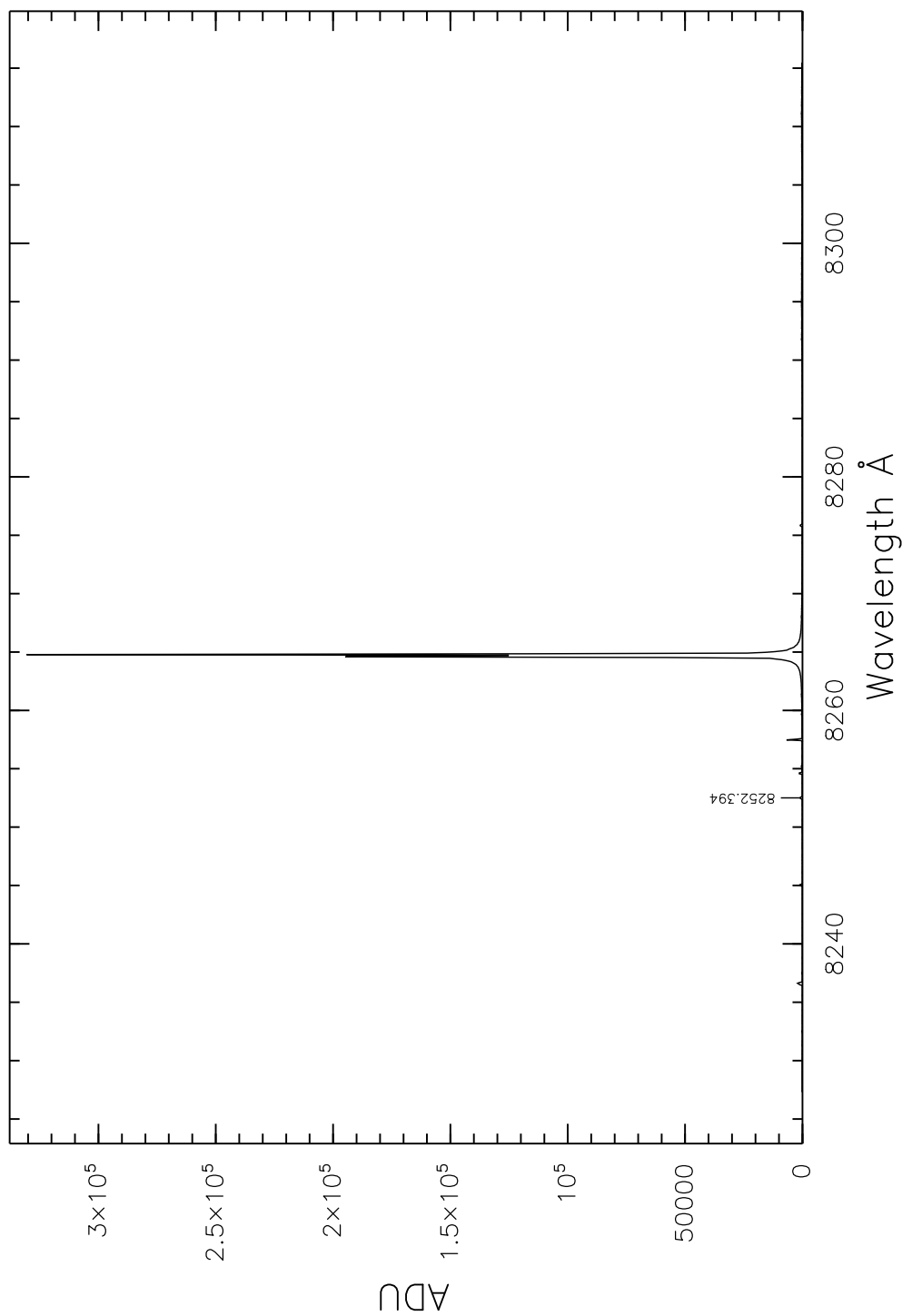




NTT EMMI :: Echelle Grating 14 Grism 6 :: order 31



NTT EMMI :: Echelle Grating 14 Grism 6 :: order 32



NTT EMMI :: Echelle Grating 14 Grism 6 :: order 33

