

MOS2 CCD2 & CCD5 noise problems

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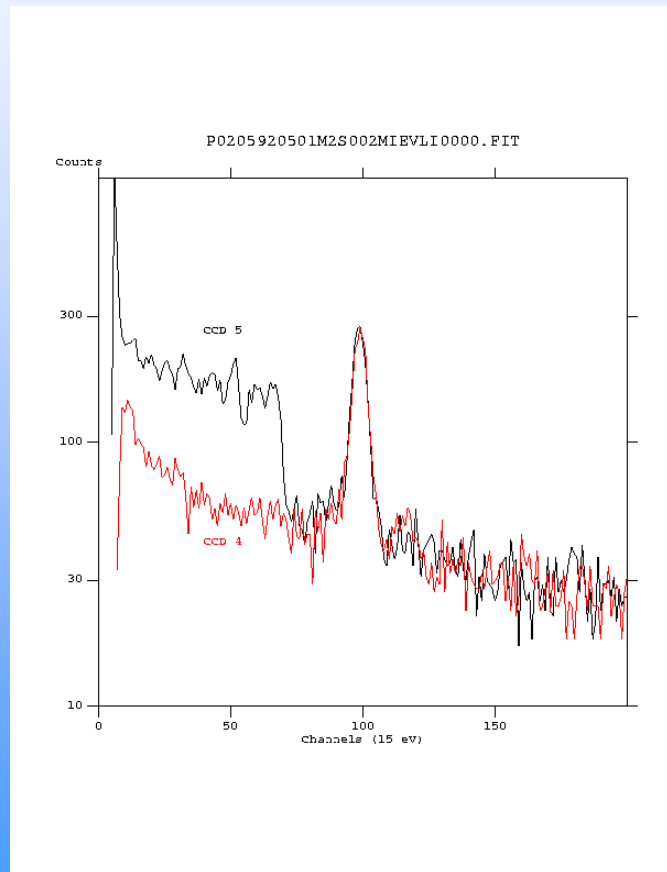
XMM Calibration/Ops Meeting Mallorca
1-3 Feb 2005



Introduction

- Alerted to changes in noise on MOS2 CCD2 and 5 by SSC/Ballet/Altieri et al
- CCD2 – low energy spectral noise
- CCD5 – strange flat spectrum with cut off at approx 1keV
- Seems to be more frequent in later revolutions, although we had problems right from the start
- This is work in progress.....

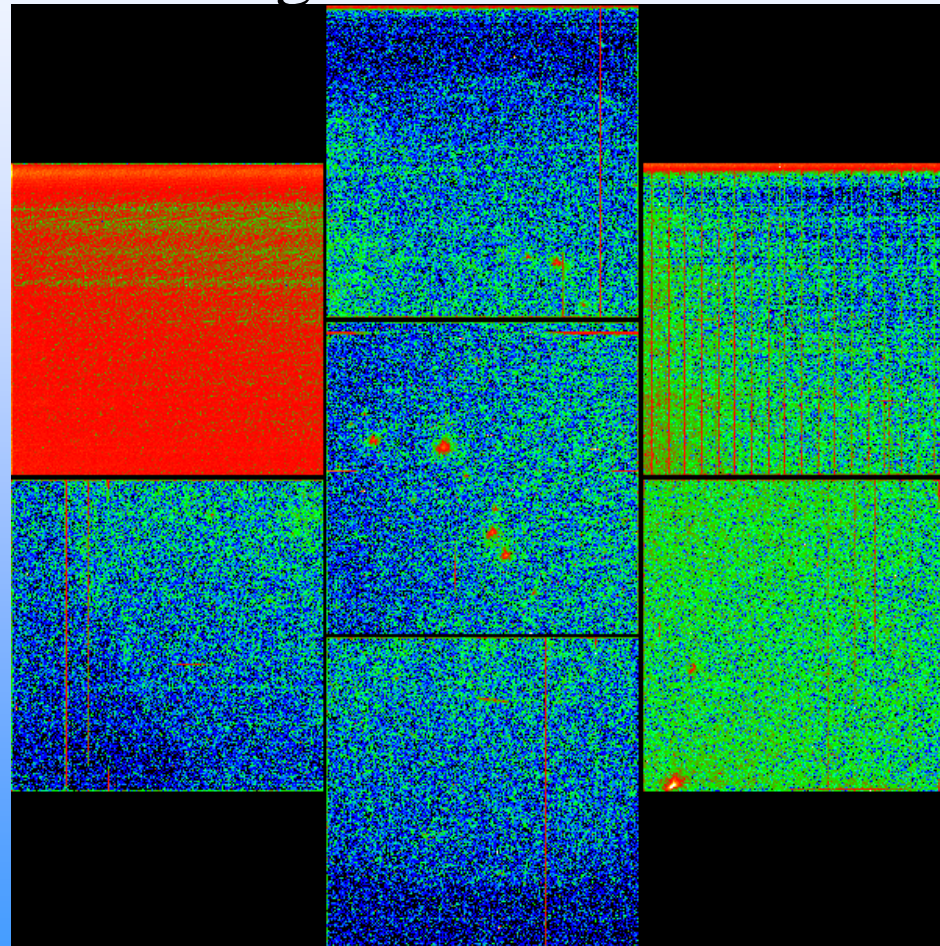
Spectral comparison of CCD5 and CCD4 on rev 891 (Ballet/Ceballos)



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Back in the early days – rev 23 – bad noise often on
CCD2 until reset voltage tweaked.

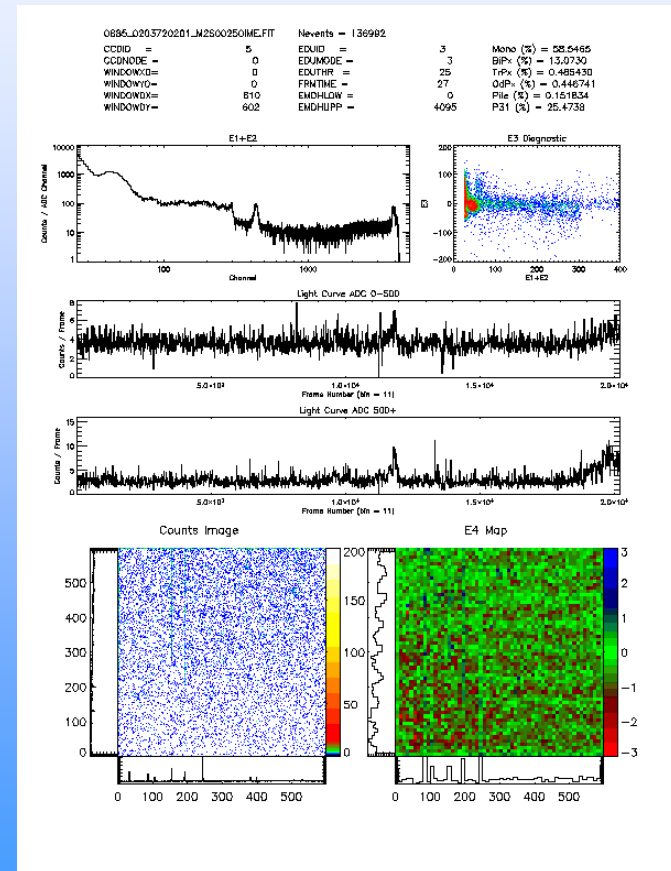
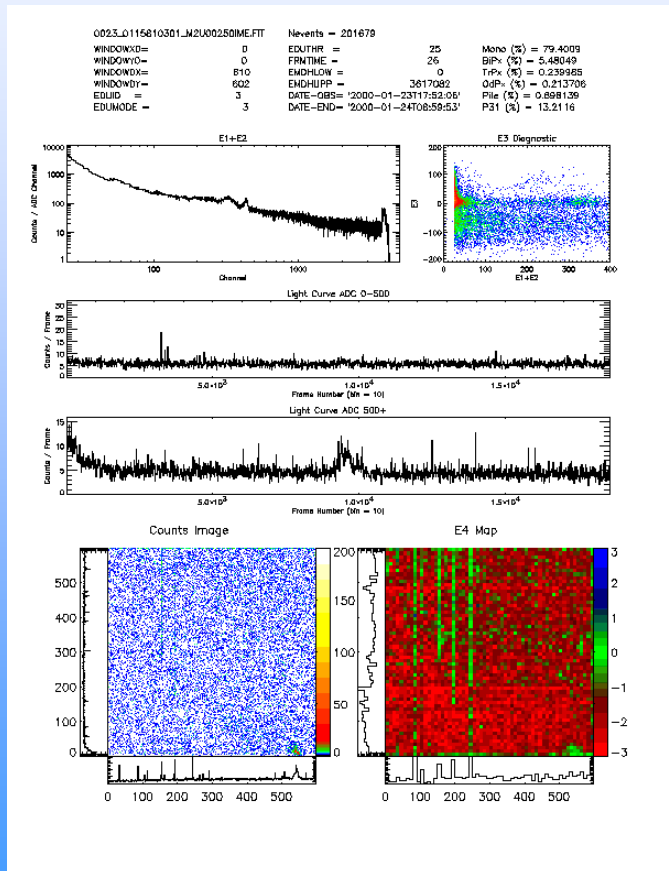
Note column noise on CCD4 and general extra
brightness on CCD5



Revs 1-199 animation

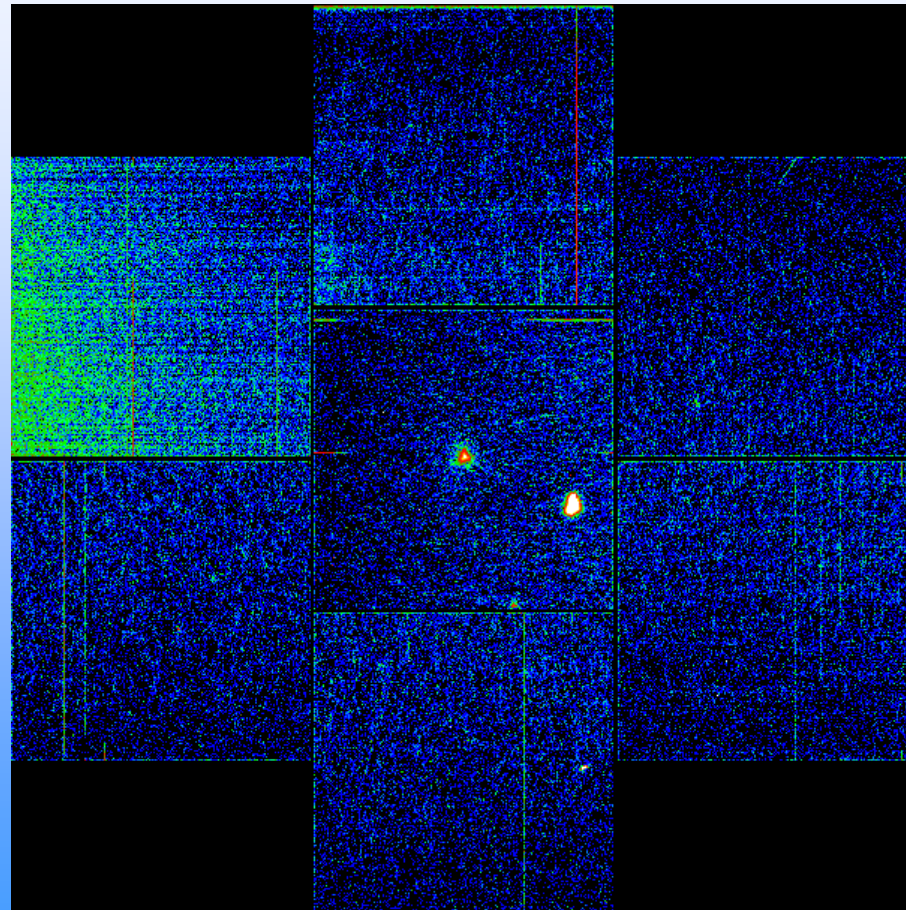
Click on e:\xmm_ccd_images\mos2_animated_1-199_16col.gif

Rev 23 noise does not have the spectral cut-off of the later occurrences such as rev 885



MOS2 focal plane view rev 880

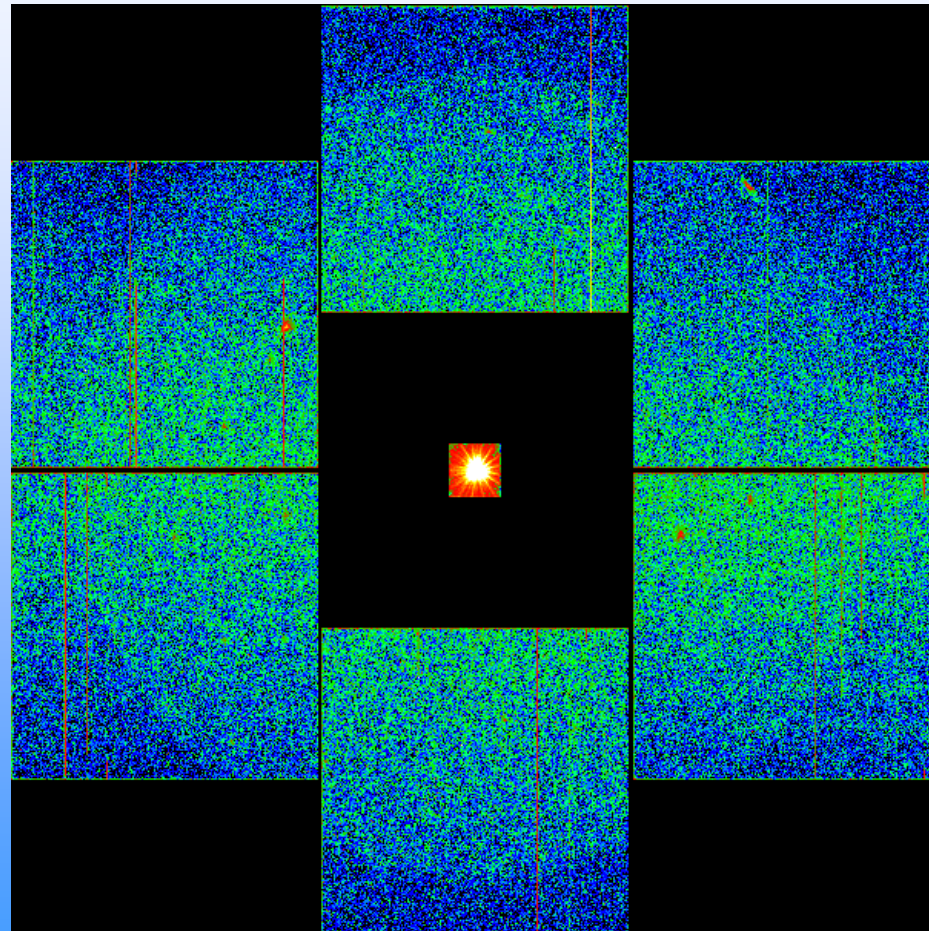
ccd2
noisy ->



<- ccd5
quiet

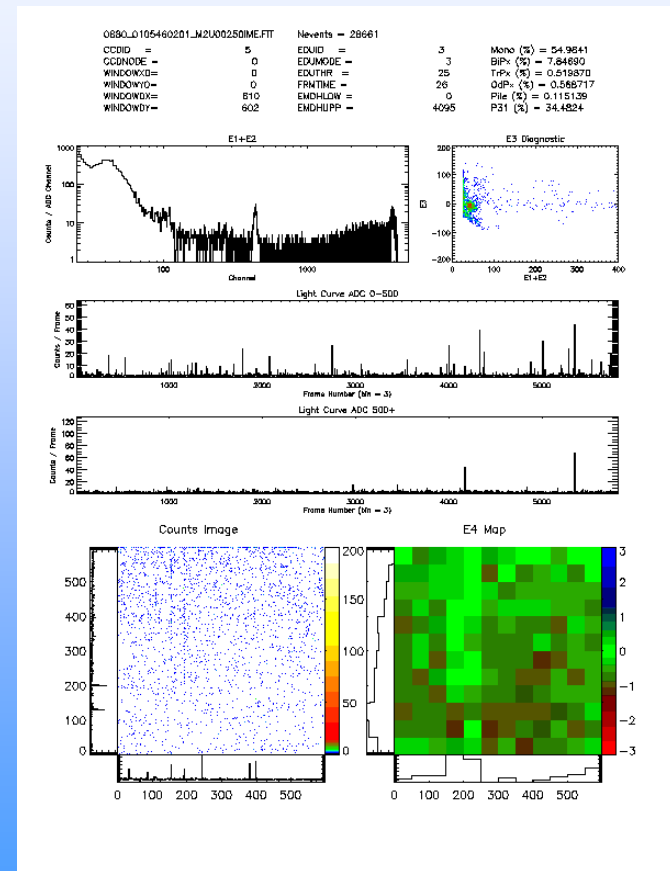
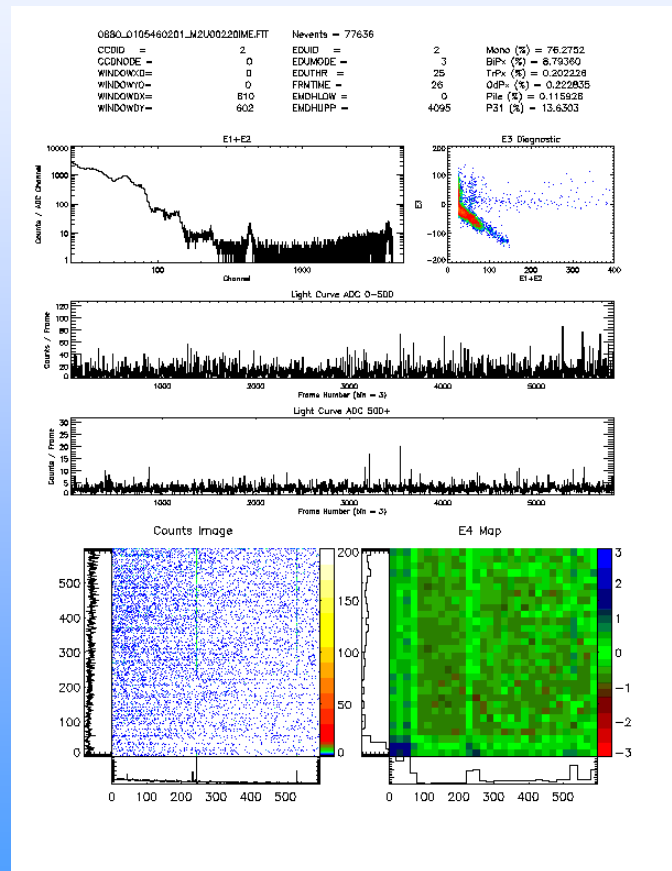
MOS2 focal plane view rev 885

ccd2
normal ->

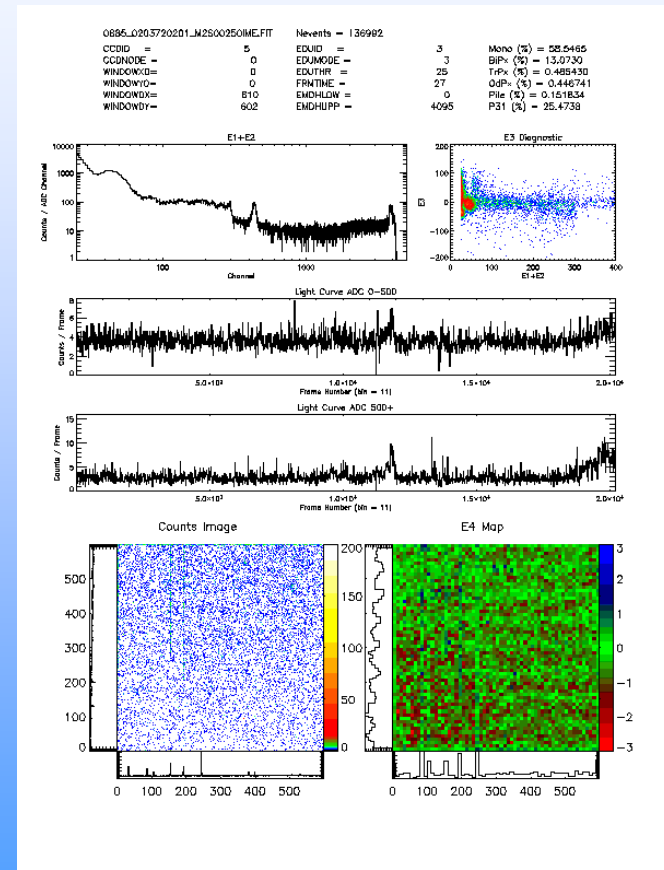
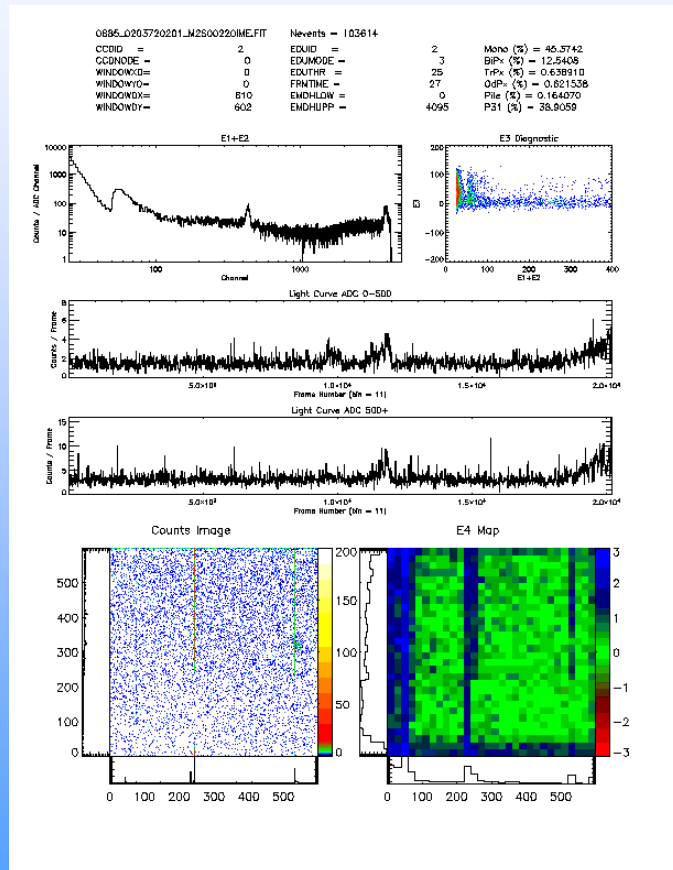


<- ccd5
noisy(ish)

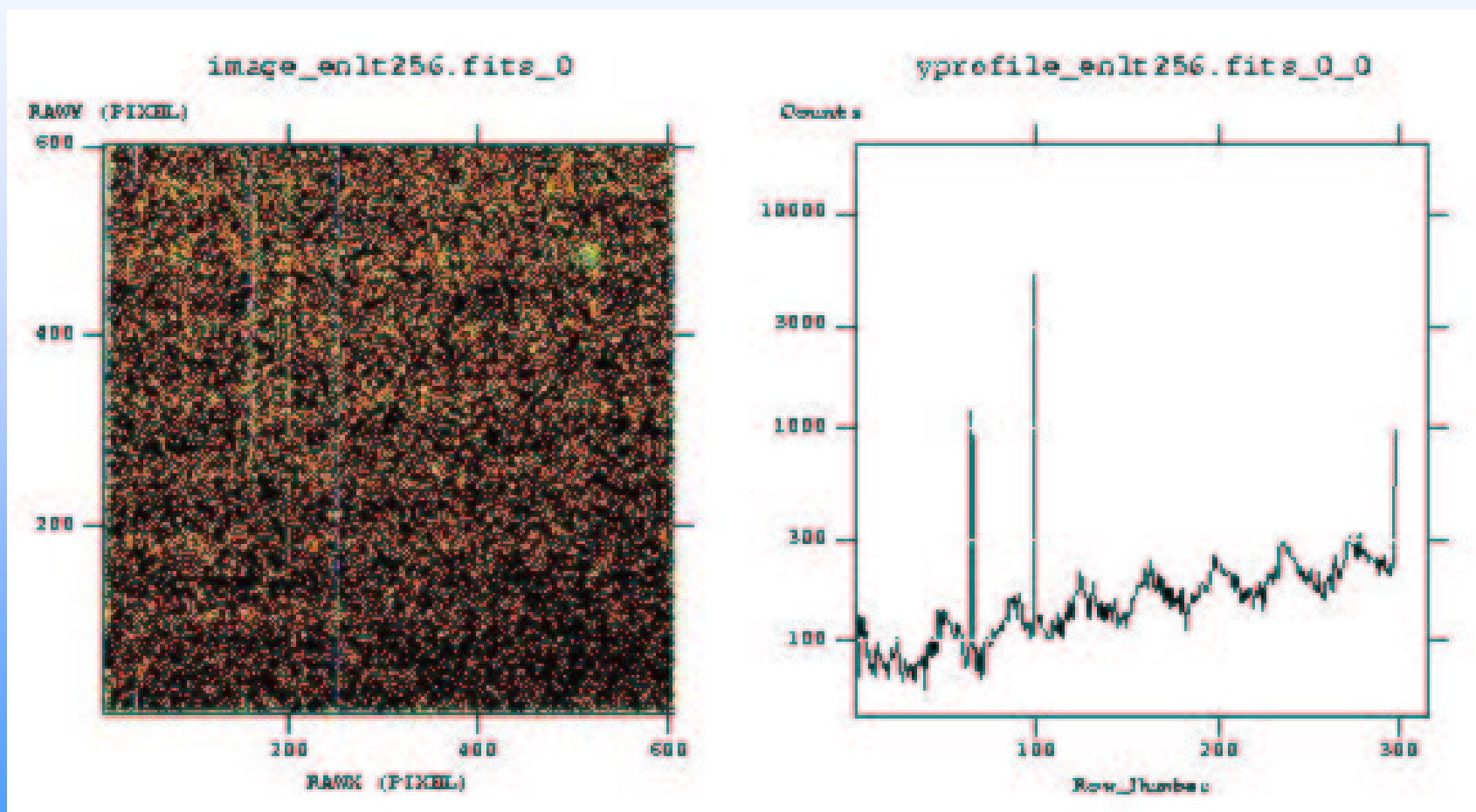
CCD2&5 spectral comparison rev 880



CCD2&5 Spectral comparison rev 885

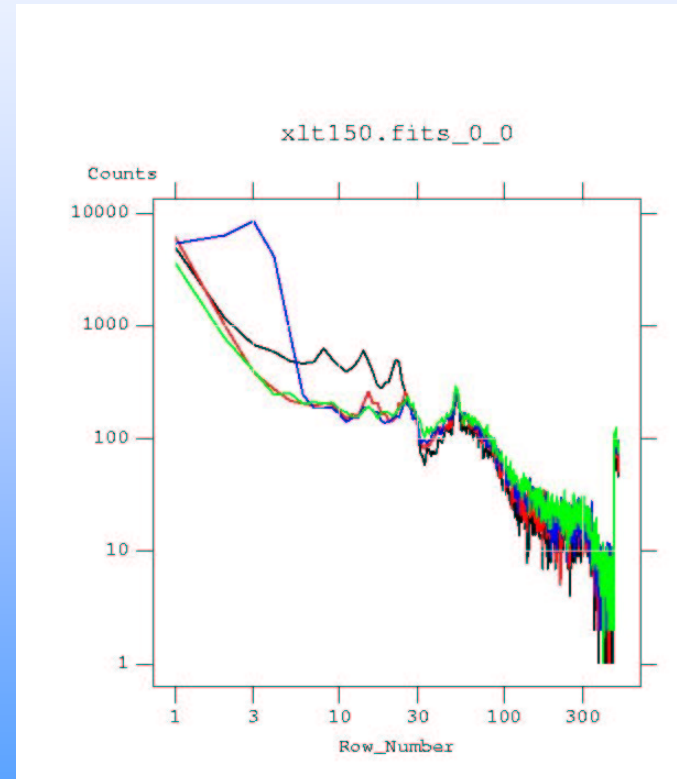
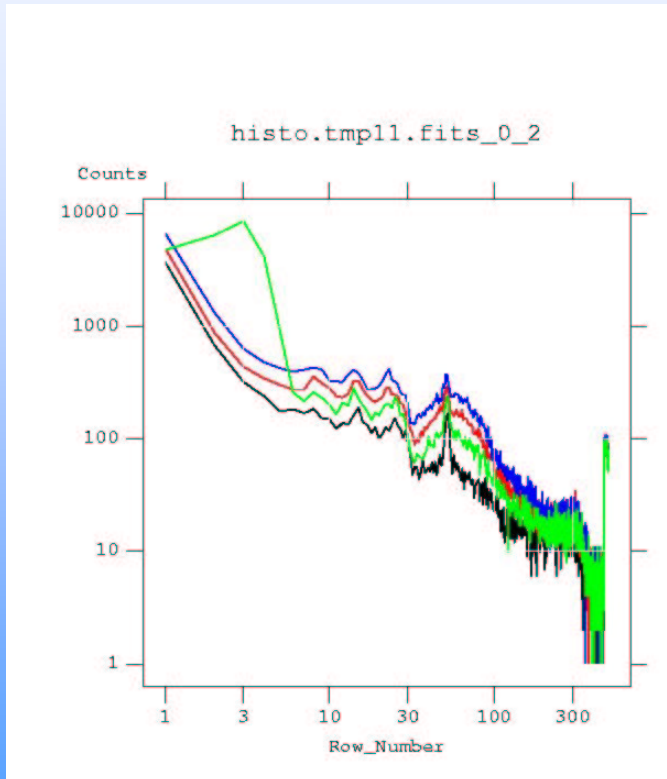


Rev 885 CCD5 Events < 250DN



CCD5 noise distribution

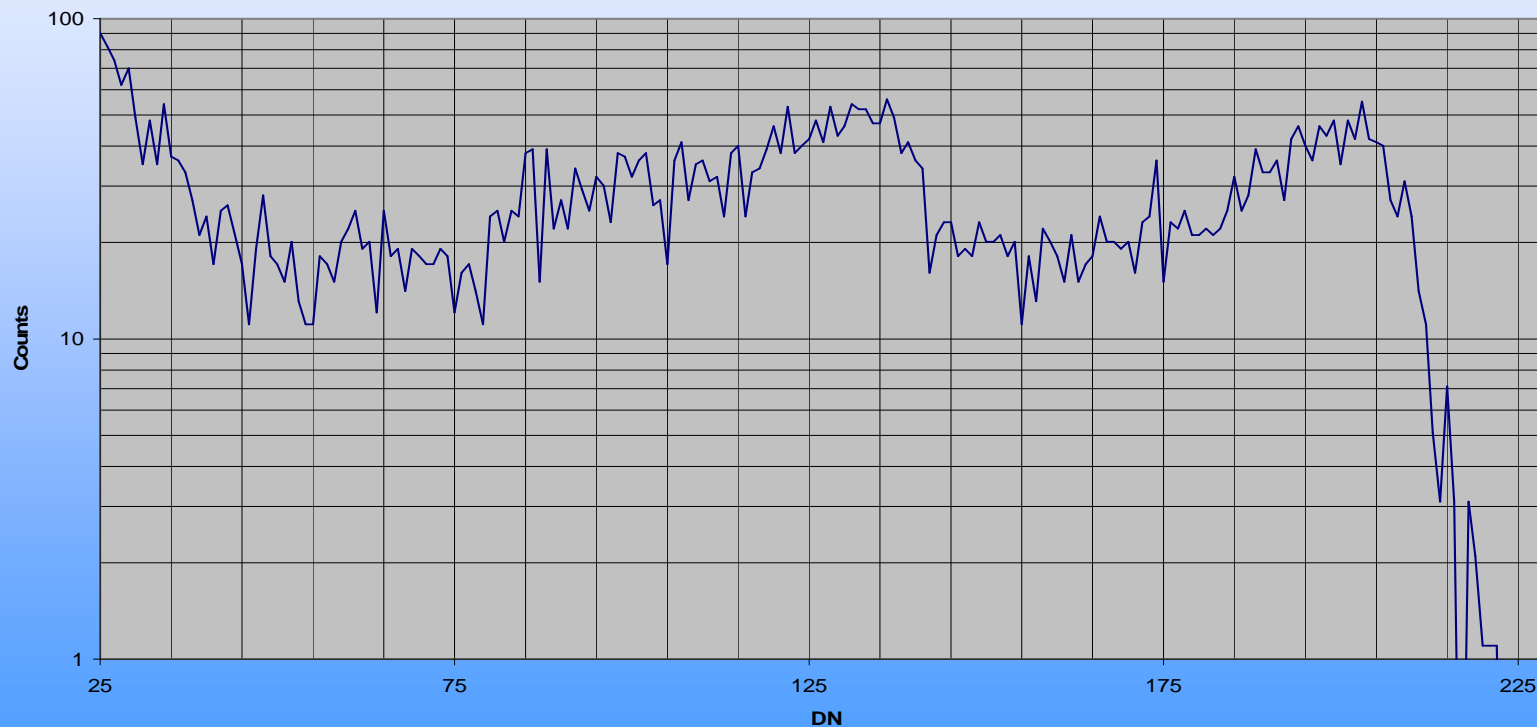
885 - 0203720201m2002



Areas of 150 rows high and ditto for 150 columns wide

CCD5 First 2 columns – rev 885

Spectrum of first 2 columns of CCD5



What to do next?

- Do we want to try moving some clock voltages around?
- Open to the floor for suggestions