MOS2 CCD5 anomaly

Status of the investigations.
Detection of the problem

- Maite Ceballos and Jean Ballet discovered a large excess of counts <1 keV in MOS2 CCD5.
- Effect stops abruptly at about 1keV.
- Effect appears quite often.
- Jean Ballet informed ESAC.

Rev. 891: MOS2 - 200-500 eV
Facing the beast

Out-FOV region MOS2 CCD5
How to find other observations

- Compare CCD5 count rates with rates of other peripheric CCDs.

- Analyse out-FOV area to exclude effects of different sky regions (field sources) and backgrounds.

- Compare count rate ratios of individual CCD to the mean count rate to avoid wrong detections due to border effects of out-FOV area.

- Exclude 2 CCDs with highest count rates from mean count rate.

- Verify that this scheme is working correctly.
Out-FOV border effects

Rev. 919 MOS2
Scanning the archive: MOS2
Scanning the archive: MOS1
Examples: MOS2 CCD5 + CCD2
Examples: MOS2 CCD5 with 2 steps
Examples: MOS1 CCD4
Examples: MOS1 CCD5
Triggered by high radiation?
Triggered by high radiation? Unlikely!
Search for correlation with HK parameter
Conclusions

• MOS2 CCD5 effect is present from begin of the mission.

• (Short) phases in the past, continuously present since rev. 874.

• Effect also found in other CCDs of MOS1 and MOS2.

• So far no switch on/off detected within an observation.

• No occurrence of strange event pattern.

• No correlation with radiation monitors.

• Started to correlate with HK parameters.

• Perfect addition to the EPIC anomaly gallery.