# XMM-Newton CCF Release Note

## XMM-CCF-REL-191

## EPIC MOS Fixed Offset Tables

M.J.S. Smith

August 12, 2005

# 1  CCF Components

| Name of CCF | VALDATE | EVALDATE | Blocks Changed | CAL Version | XSCS Flag |
|---|---|---|---|---|---|
| EMOS1_DARKFRAME _0015.CCF | 2005-07-31T03:00:07 | 2005-07-31T19:45:01 | OFFSET_CCD1 | | NO |
| EMOS1_DARKFRAME _0016.CCF | 2005-08-01T20:08:00 | 2005-08-01T22:55:00 | OFFSET_CCD1 | | NO |
| EMOS1_DARKFRAME _0017.CCF | 2005-08-02T04:09:00 | 2005-08-02T18:36:00 | OFFSET_CCD1 | | NO |

# 2  Changes

The OFFSET blocks in the DARKFRAME CCFs reflect the uploaded MOS fixed offset tables. Changes mentioned here are with respect to EMOS1_DARKFRAME_0014.CCF and EMOS2_DARKFRAME_0014.CCF.

Following the appearance of the MOS1 CCD1 hot column at diagnostic RAWX = 323 (as a result of the suspected revolution 961 impact event) the on board offsets for pixels in this column were raised to 123 ADU for all modes.

Additionally, the analysis of MOS background maps shows a continued decrease in background for several MOS1 and MOS2 CCDs by, typically, $\sim 1$ ADU per year. It is therefore deemed necessary to lower the overall uploaded offset levels for MOS1 CCDs 3 and 5 and MOS2 CCD 5 by 1 ADU and MOS2 CCD 6 by 2 ADUs. This is done through a corresponding change in the fixed column offsets for these CCDs, and is reflected in the new CCFs.

Owing to replanning of revolutions and manual commanding during observations there is a period of time in which the uploaded MOS fixed offset tables switch betweeen versions; in addition, the
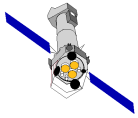
version used in one observation may differ from CCD to CCD, i.e. there are cases in which for the central CCD (CCD1) a diferent version is in use than for the peripheral CCDs (CCD2-7). All these changes are reflected in the CCFs.

# 3   Scientific Impact and Estimated Quality

Regarding the MOS1 CCD1 hot column: Owing to the increased offset subtracted on board, the noise level of the hot column is substantially lowered. Additionally, the energy of real events detected in the column will be correctly restored.

   Regarding the overall CCD offsets: The lowering of the overall offset level will restore the fixed offset to the level of the actual CCD offset. Too high offsets would result in the loss of events (or partial event charge) below threshold, whereas too low offsets would increase noise above threshold, potentially creating false events or adding charge to real events.

# 4   Expected Updates

Long term CCD noise trends will need to be compensated through changes of the fixed offsets.

# 5   Test Procedures and Results

Correct functionality tested with with **emchain** and *emproc* (SAS version 6.1).