XMM-Newton CCF Release Note

XMM-CCF-REL-74

EPIC Dark Frames

D Lumb

April 27, 2001

1 CCF components

Name of CCF	VALDATE	List of Blocks changed	CAL VERSION	XSCS flag
EMOS1_DARKFRAME_0007.CCF	2000-01-01	DARKFRAME_CCDn OFFSET_CCD1	NO	
EMOS1_DARKFRAME_0007.CCF	2000-01-01	DARKFRAME_CCDn OFFSET_CCD1	NO	

2 Changes

It seems there are low level pixel defects which affect locally the energy scales, that are not corrected for by the on-board offset vectors. In trying to establish the limits to low energy response, it seems important to make a correction for these.

As a result changes to the the dark frame files to include a higher precision were made. Several 10's of diagnostic image files from early in the mission were median filtered to remove cosmic ray artefacts, and teh mean pixel by pixel offset value calculated. Keyword ALGOID allows to check whether CAL needs to divide by 100 or not to gain appropriate precision.

Fixed SPR 1987 on loction of Right Hand Side patched column for window modes in the as-used on-board offset tables.

Added in the TIMING mode offset data as newly compiled by A Tiengo for the fixed table usage - this should apply the as-calculated offsets in early mission phase as well

3   Scientific Impact of this Update

4   Estimated Scientific Quality

Depending on the number of usable image frames used the typical error on determining a pixel offset is about 1 - 2 electrons. This implies an X-ray photon energy bias error of order 5 eV.

5   Expected Updates

Due to developing low level defects, this file set may need to be updated with time