

XMM-Newton CCF Release Note

XMM-CCF-REL-213

Evolution of the RGS CTI

A.M.T. Pollock

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1 CCF components

Name of CCF	VALDATE	List of Blocks changed	XSCS flag
RGS1_CTL0008	2004-05-09T02:00:00	XCTI	NO
		CTIY1	NO
		CTIY2	NO
		CTIY3	NO
		CTIY4	NO
		CTIY5	NO
		CTIY6	NO
		CTIY7	NO
		CTIY8	NO
		CTIY9	NO
RGS2_CTL0009	2004-05-09T02:00:00	XCTI	NO
		CTIY1	NO
		CTIY2	NO
		CTIY3	NO
		CTIY4	NO
		CTIY5	NO
		CTIY6	NO
		CTIY7	NO
		CTIY8	NO
		CTIY9	NO

2 Changes

CCDs in space are subject to particle radiation damage that causes charge transfer characteristics to change. It is part of the RGS routine calibration plan periodically to do observations of suitably bright targets towards the upper and lower edges of the CCDs in the cross-dispersion direction in order to assess the evolution of the CTI. Two such offset observations of Mkn421 were done in

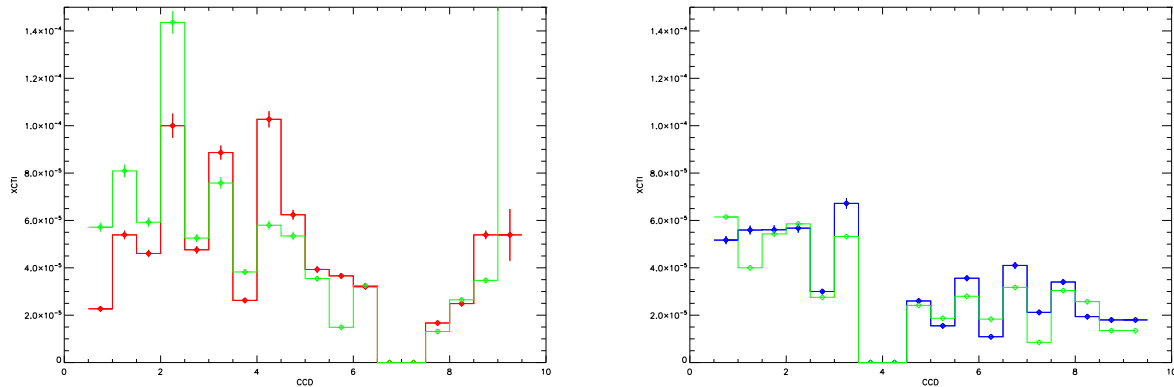
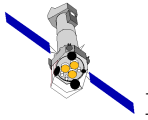


Figure 1: New XCTI values in green compared with their previous values for RGS1 in red on the right and RGS2 in blue on the left. For each CCD, there are separate values for each node.

rev 1083. These gave rise to the revisions released here. The XCTI values are shown in Fig. 1 in comparison with their previous values.

3 Scientific Impact of this Update

TBD.

4 Estimated Scientific Quality

More robust event PI values leading to more reliable selection regions.

5 Test procedures & results

This CCF is part of the overall calibration effort whose final results are described in the new RGS effective area model described in XMM-SOC-CAL-SRN-0216. Nonetheless, internal consistency of the CTI values has been confirmed by ensuring the consistency of the PI distributions of the Mkn421 observations performed on-axis and with positive and negative cross-dispersion offsets in revs 1083 and 1084.

6 Expected Updates

It is expected that similar offset observations of Mkn421 will be performed every two years.