

XMM-Newton CCF Release Note

XMM-CCF-REL-384

EPIC filter-wheel closed data

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1 CCF components

| Name of CCF | VALDATE | List of Blocks changed | Change in CAL HB |
|--------------------|------------|------------------------|------------------|
| EMOS1.FWC_0004.CCF | 2000-01-01 | EVENTS, EXPTIME | NO |
| EMOS2.FWC_0004.CCF | 2000-01-01 | EVENTS, EXPTIME | NO |
| EPN.FWC_0004.CCF | 2000-01-01 | EVENTS, EXPTIME | NO |

2 Change

The EPIC CCD cameras on board XMM-Newton are equipped with a filter wheel system and 6 different filter setups. One of these is a CLOSED filter. Exposures taken with the filter wheel in the CLOSED position are dominated by the instrumental background and can be used to model and subtract the internal instrumental background. Filter Wheel Closed (FWC) event lists exist and are available through the SOC web pages for EPIC-pn and EPIC-MOS and for the different EPIC modes. This CCF extends the FWC data currently available (see CAL-SRN-0344, CAL-SRN-0352 and CAL-SRN-0379) by adding events from revolutions made between 2020-04-30 (rev. 3735) and 2021-01-18 (rev. 3866). For EPIC-MOS, this release also incorporates the addition of a new column to the EVENTS extension. A column CCDNOISE, flags noisy chips according to: 0 - chip is good/not anomalous; 1 - chip is not good but not clearly anomalous; 2 - chip is clearly anomalous; 3 - the chip is off.

3 Test procedure and results

Tests were run as part of the annual release of the FWC repository. For testing, an IDL code that handles files from the FWC repository is checked against the SAS task *evqpb*.

The test involves comparing the results obtained from the analysis of a science observation when using the FWC repository files directly against those obtained when running the

SAS task *evqpb* in conjunction with the draft CCF files.

In particular, for the science observation used (obsid 0555630101; rev 1594: Source SN 1006-1) two things are checked:

- that the revolutions drawn from the FWC repository to build the FWC event file corresponding to the science observations, are identical to those used when extracting files directly from the FWC repository (IDL code), when using the SAS task *evqpb* in conjunction with the draft CCF files.
- that the derived FWC spectrum is identical when extracting it directly from the FWC repository (IDL code), and when using the SAS task *evqpb* in conjunction with the draft CCF files.

4 Future changes

This set of CCFs will continue to be updated periodically to include the most recent FWC data. Although the coefficients for EPIC-pn EFF and LW mode are included in this CCF release, FWC data for these two modes need to be included in the release for *qpbselect* to work on these modes.

5 References

de laCalle et al. 2016, CAL-SRN-0344.
de laCalle et al. 2017, CAL-SRN-0352.
de laCalle et al. 2020, CAL-SRN-0379.