

# XMM-Newton CCF Release Note

XMM-CCF-REL-175

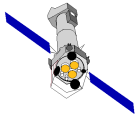
## EPIC PN Bad Pixels

M.J.S. Smith

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### 1 CCF components

Name of CCF	VALDATE	EVALDATE	Blocks Changed	CAL Version	XSCS Flag
EPN_BADPIX_0093.CCF	1999-12-10T00:00:00		BADPIX		NO
EPN_BADPIX_0094.CCF	2000-06-29T02:00:00		BADPIX		NO
EPN_BADPIX_0095.CCF	2000-07-13T21:37:00		BADPIX		NO
EPN_BADPIX_0096.CCF	2000-07-25T00:45:00		BADPIX		NO
EPN_BADPIX_0097.CCF	2000-07-25T05:50:00		BADPIX		NO
EPN_BADPIX_0098.CCF	2000-07-26T04:48:00		BADPIX		NO
EPN_BADPIX_0099.CCF	2000-08-14T01:00:00		BADPIX		NO
EPN_BADPIX_0100.CCF	2000-10-21T00:00:00		BADPIX		NO
EPN_BADPIX_0101.CCF	2000-10-25T15:00:00		BADPIX		NO
EPN_BADPIX_0102.CCF	2000-10-31T23:00:00		BADPIX		NO
EPN_BADPIX_0103.CCF	2000-11-03T21:00:00		BADPIX		NO
EPN_BADPIX_0104.CCF	2000-11-09T16:00:00		BADPIX		NO
EPN_BADPIX_0105.CCF	2000-12-13T20:00:00		BADPIX		NO
EPN_BADPIX_0106.CCF	2000-12-14T11:00:00		BADPIX		NO
EPN_BADPIX_0107.CCF	2000-12-25T13:00:00		BADPIX		NO
EPN_BADPIX_0108.CCF	2001-04-20T08:00:00	2001-04-20T10:30:00	BADPIX		NO
EPN_BADPIX_0109.CCF	2001-04-22T07:30:00	2001-04-22T09:57:00	BADPIX		NO
EPN_BADPIX_0110.CCF	2001-05-14T14:30:00	2001-05-14T19:55:00	BADPIX		NO
EPN_BADPIX_0111.CCF	2001-05-22T05:00:00	2001-05-22T14:15:00	BADPIX		NO
EPN_BADPIX_0112.CCF	2001-05-23T07:15:00	2001-05-23T20:59:00	BADPIX		NO
EPN_BADPIX_0113.CCF	2001-05-26T08:05:00	2001-05-26T14:59:00	BADPIX		NO
EPN_BADPIX_0114.CCF	2001-06-03T04:30:00		BADPIX		NO
EPN_BADPIX_0115.CCF	2001-07-26T14:00:00	2001-07-28T21:00:00	BADPIX		NO
EPN_BADPIX_0116.CCF	2001-08-02T04:00:00	2001-08-11T20:40:00	BADPIX		NO
EPN_BADPIX_0117.CCF	2001-08-16T03:50:00		BADPIX		NO



## 2 Changes

This new set of CCFs, which covers the mission from launch up to the present, contains an additional hot pixel entry. The pixel is located on `CCD_ID = 1` at co-ordinates `RAWX = 56 [1..64]`, `RAWY = 75 [1..200]` and is designated as type 'H', i.e. not up-linked to the spacecraft but stored in the CCF only (see [1]).

Where applicable, the `BPT_CODE` keyword value has been added to the `BADPIX` extension. This allows the SAS task *badpix* to check whether the correct bad pixel CCF is being used for a given observation by comparing certain housekeeping parameters in the PAH.fits file with the associated `BPT_CODE` value. Details may be found in [1] and the *badpix* specific documentation.

Furthermore, through the use of the `EVALDATE` keyword it has been possible to reduce the number of `EPN_BADPIX` CCF issues covering the mission from 33 to 25.

## 3 Scientific Impact of this Update

The inclusion of the above mentioned hot pixel was motivated by its causing a false source detection in some observations. This problem should be resolved with the use of this new set of CCFs.

## 4 Estimated Scientific Quality

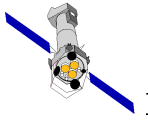
Note that in all the EPIC cameras there are intermittent bad pixels that may arise in only one exposure. The user is recommended to run the bad pixel finding algorithm, and remove after processing.

## 5 Test Procedures

Functional testing and verification of correct bad pixel location with *calview* for all CCFs. Owing to the large number of CCFs only a subset was further evaluated through `EVALDATE` testing with *cifbuild*, and `BPT_CODE` testing with *badpix*.

## 6 Summary of the Test Results

Correct bad pixel contents for all CCFs. For those CCFs tested and where relevant the inclusion of the `BPT_CODE` keyword did not result in any corresponding *badpix* task warnings.



## References

- [1] XMM-Newton Calibration Access and Data Handbook, XMM-PS-GM-20, Issue 3.0, section 4.3.6.