# CALIBRATION STATUS REPORT (CALDB 2.12)

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Description: Event thresholds and split thresholds

Most recent version in CALDB: acisD1996-11-01evtspltN0001.fits

File Creation Date: 3/3/99

Known Errors: None
Status: Complete

# 1.4 GTI LIM

Description: screening parameters for Good Time Intervals Most recent version in CALDB: acisD1999-07-22gtilimN0003.fits

File Creation Date: 5/22/01

Known Errors: None
Status: Complete

#### 1.5 DETECTOR GAIN

#### 1.5.1 DET\_GAIN at T = -120C

Description: Detector Gain Table

Most recent version in CALDB: acisD2000-01-29gainN0003.fits

File Creation Date: 07/27/01

Known Errors: S3 chip: There is a gain off-set of about 16eV

below 700eV and some residual features around 2000eV due to the granularity in the gain table. The non-CTI corrected gains for the FI chips in this version assume a linear gain. This produces offsets of approximately 20eV between the mean pulse heights

and true energies for photon energies between about 400 and 1000eV, with larger errors at lower

energies. All future gain tables for the FI chips

will be based on CTI corrected data.

Status: Update expected June, 2002 for the S3 chip

July, 2002 for the S1 chip Aug, 2002 for the FI chips

Contact: Norbert Schultz and Dick Edgar

More Information: CAL projects.

#### 1.5.2 DET GAIN at T = -110C

Description: Detector Gain Table

Most recent version in CALDB: acisD1999-09-16gainN0005.fits

File Creation Date: 12/15/00

Known Errors: Low energy gain (see 1.5.1)

Status: Update expected June, 2002 for the S3 chip

July, 2002 for the S1 chip

TBD for the FI chips

Contact: Norbert Schultz and Dick Edgar

# 1.5.3 DET\_GAIN at T = -100C

Description: Detector Gain Table

Most recent version in CALDB: acisD1999-08-13gainN0002.fits

File Creation Date: 12/14/99



**CALIBRATION** 

# **ACIS Calibration Data and Data Products**

#### **Calibration Products**

**NOTE: CTI-Induced Quantum Efficiency Loss in ACIS Front Illuminated Devices** 

**Recent updates:** New S3 FEF release notes now available, 08/10/01 New S3 FEF's Available Soon, 07/17/01; **ACIS Calibration Issues in Progress**, 03/01/02; Bad pixel maps, 06/28/01

# • ACIS Background

Particle background measurements for ACIS-I, ACIS-S and Quiescent background in VF mode. 09/28/01

- Bad Pixel Locations
  - Table of bad pixels and columns. 06/28/01
- Detector geometry

ACIS Focal Plane Array. 11/20/97

• Effective Area

Plot of HRMA+ACIS FI and BI effective area vs energy. 06/03/99

• Energy Resolution

In-flight ACIS spectral resolution analysis. 01/18/00

Event Grades

Branching ratios, techniques, and simulated branching ratios. 11/06/98

• The FEP0 Problem 02/02/00

# • Gain and CTI update memo

ACIS charge transfer inefficiency and gain corrections. 07/24/01

# • Optical Blocking Filter Transmission

Global I-array and S-array maps; plots of transmission vs. energy and transmission vs. wavelength. 03/10/00

# Pileup

Pileup analysis using analytical model and PSF data. 10/07/98

#### • Point Spread Function

PSF analysis for all on-axis and off-axis XRCF PSF tests. 04/30/99

#### • Quantum Efficiency

Plot of ACIS FI and BI QE; map of ACIS spatial non-uniformities. 07/24/00

# • ACIS Response Matrices

Release notes of new S3 Response Matrices, including caveats, limitations, error analysis, and tests against astrophysical sources. 10/09/2001

• ACIS Calibration Issues in Progress

Analysis of low energy response on the back-illuminated chips 03/01/02

**ACIS Team Calibration Report** 

V2.2, 1/15/99 (**55 Mb** postscript file)

**ACIS-Related Calibration Data** 

#### 2.3.1 DEGAP for HRC-I

Description: Degap correction table

Most recent version in CALDB: hrciD1999-07-22gapN0002.fits

File Creation Date: 12/15/00

Known Errors: none
Status: complete

#### 2.3.2 DEGAP for HRC-S

Description: Degap correction table

Most recent version in CALDB: hrcsD1999-07-22qapN0002.fits

File Creation Date: 05/09/01

Status: No updated presently planned. More Information: HRC calibration.

# 2.4 QE (Mean Quantum Efficiency)

# **2.4.1 QE for HRC-I**

Description: Mean quantum efficiency

Most recent version in CALDB: hrciD1999-07-22geN0004.fits

File Creation Date: 11/02/01

Known Errors: The QE is accurate to better than 7% above 0.8 keV

and better than 15% between 0.277 and 0.8 keV. Below the C-K edge, the QE may be off by as much as a factor of two.

Status: Update expected May, 2002

Contact: Hank Donnelly

More Information: HRC calibration.

# 2.4.2 QE for HRC-S

Description: Mean quantum efficiency

Most recent version in CALDB: hrcsD1999-07-22qeN0005.fits

File Creation Date: 12/8/99

Known Errors: The QE is accurate to better than 20% above the

C-K edge (0.277 keV). Below the C-K edge, the QE may be off by as much as a factor of two.

Status: Update expected Sept, 2002

Contact: Jeremy Drake

More Information: HRC calibration.

# 2.5 QEU (Quantum Efficiency Uniformity)

# 2.5.1 QEU for HRC-I

Description: quantum efficiency map

Most recent version in CALDB: hrciD1999-07-22qeuN0002.fits

File Creation Date: 12/4/99

Status: Update expected Dec, 2002

Contact: Hank Donnelly

