Chandra X-ray Center

URL: http://cxc.harvard.edu/caldb/prop_plan/imaging/index.html
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ACIS Cycle 10 Aimpoint and Off−Axis RMFs/ARFs

Caveats

We have prepared sample RMFs and corresponding ARFs for proposal planning purposes. These are positioned at the aimpoints of the ACIS−I and ACIS−S arrays, and at selected off−axis points to allow the proposer to estimate the effects of the ACIS CTI on the chips' performance using the current operational mode at ***focal plane temperature of −120C***. Table 1 includes the filenames and corresponding chip and sky coordinates to which they apply.

To download individual files, <Shift>−click on the filename. The complete set of responses is available as a gzipped tarfile from the anonymous FTP site `asc.harvard.edu` in the directory `/pub/caldb/CY10`.

Table 1: ACIS Cycle 10 Responses.

RMF Filename	*ARF Filename*	*CCD*	*(CHIPX, CHIPY)*	*Off−Axis Position (arcmin)*	*Distance from Readout (arcmin)*
acisi_aimpt_cy10.rmf	acisi_aimpt_cy10.arf	I3	(972, 964)	0 (On−axis)	7.75
acisi_2am_cy10.rmf	acisi_2am_cy10.arf	I3	(972, 708)	2	5.75
acisi_4am_cy10.rmf	acisi_4am_cy10.arf	I3	(972, 452)	4	3.75
acisi_6am_cy10.rmf	acisi_6am_cy10.arf	I3	(972, 196)	6	1.75
aciss_aimpt_cy10.rmf	aciss_aimpt_cy10.arf	S3	(224, 520)	Default pointing position for ACIS−S (Now +10" from nominal aimpoint)	4
aciss_2am_cy10.rmf	aciss_2am_cy10.arf	S3	(224, 264)	2 (toward readout)	2
aciss_−2am_cy10.rmf	aciss_−2am_cy10.arf	S3	(224, 776)	−2 (away from	6

				readout, toward ACIS−I)	

These files were built with CIAO 3.4 and CALDB 3.4.1. The RMFs are PI RMFs built with the CIAO phase−2 response tool `mkacisrmf`. They have 1024 linear energy bins (0.255 keV to 12.0 keV for both ACIS−I and ACIS−S), and 1024 linear PI bins (1−1024). (1−1024). All of the ACIS−I RMF files above are for the CTI−corrected response case, including the CTI corrections for ACIS−S3. That is, the P2_RESP input file used is acisD2000−01−29p2_respN0006.fits, and the new CTI−corrected gain file acisD2000−01−29gain_ctiN0006.fits has been applied in `mkacisrmf` to set the PI energy scale.

The ARFs were built with `mkarf`, using the appropriate RMF for the energy scale. They are "2−pi" ARFs (no encircled energy correction) and assume a point source. They have been corrected for the time− and spatially−dependent contaminant absorption projected for the date 2009−05−15 (TT=358732865.184s), using the ARDLIB CONTAM file feature in CIAO 3.4, with the same CalDB file as used in the previous two cycles, namely *acisD1999−08−13contamN0004.fits*.

Caveats

1. These ARFs and RMFs are for ***proposal planning purposes only***. They should not be used for analysis of any real Chandra data. The Imaging Spectroscopy threads give instructions for building an observation−specific RMF and ARF.
2. The ACIS−I (FI) RMFs should be ***accurate to within a few percent between 0.5−6.0 keV***. Below 0.5 keV, the effective area and gain for the FI devices is uncertain by 5−10%. Similar uncertainties apply above 6 keV. See the RESPONSE PRODUCTS RELEASE NOTES FOR ACIS for details.
3. The effective areas were derived for −120C ACIS focal plane temperature, and as such include CTI corrections in quantum efficiency valid for that temperature. These CTI corrections result in an energy−dependent QE gradient, which is visible in the effective area values at different distances from the readouts. Calculated count rates will be reasonably accurate without additional compensation for CTI when using these ARFs.

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