V&V Reference Report
L2 ASCDS Version : 8.3.2.1

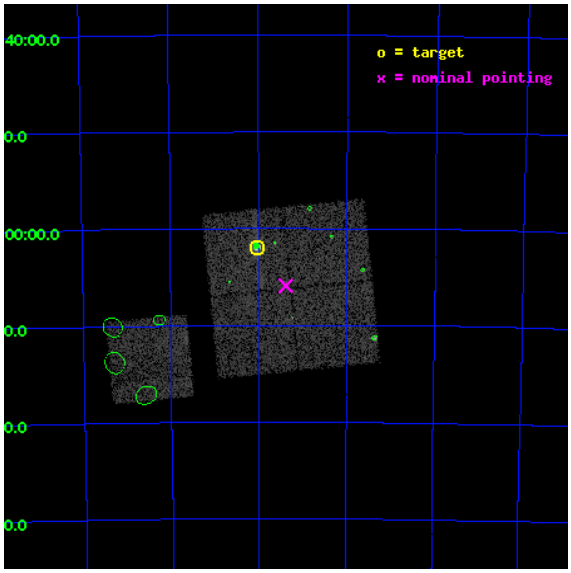
Observation 48 - L2 Version 6
Chandra X-Ray Center

L2 Processing Date : Oct 19 2010

Contents

1 Front

seq_num	590108	Sequence number
obs_id	48	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip I1, T=110, Offsets=-4,-2,0]	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA
dec_targ	-72.032028	Observer's specified target Dec
ra_nom	15.84558407841	Nominal RA
dec_nom	-72.098656675974	Nominal Dec
roll_nom	264.34324434126	Nominal Roll
revision	6	Processing version of data
ontime	8677.5492540672	Sum of GTIs [s]
livetime	8567.6689004194	Livetime [s]
ontime0	8674.4724538475	Sum of GTIs [s]
ontime1	8677.6723740622	Sum of GTIs [s]
ontime2	8677.6313340664	Sum of GTIs [s]
ontime3	8677.5492540672	Sum of GTIs [s]
ontime6	8677.5902940631	Sum of GTIs [s]
l2events	67800	Number of level 2 events

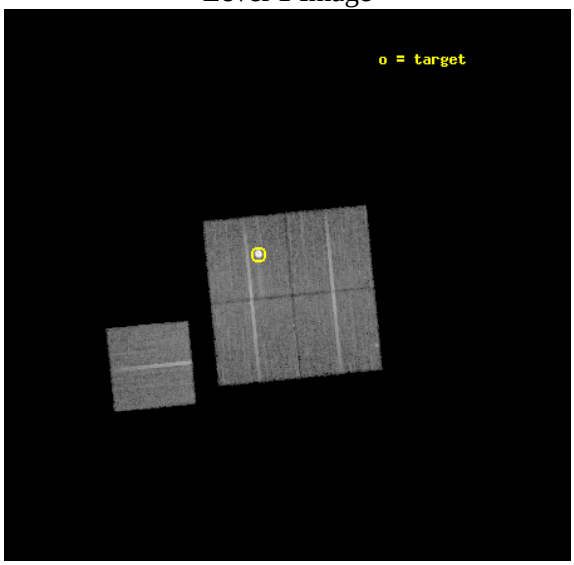


2 OBI

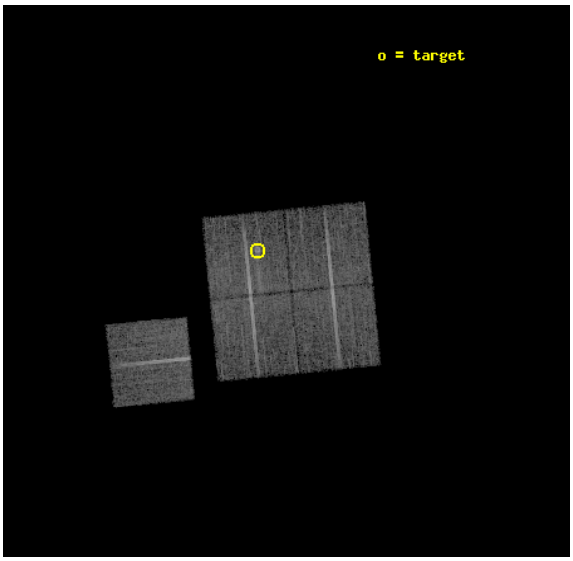
2.1 OBI

2.1.1 Images

Level 1 Image

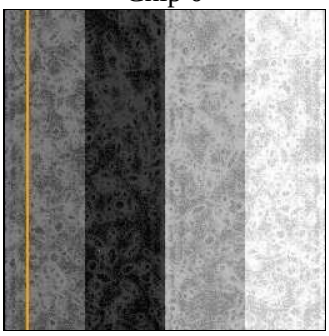


Level 1 Bad Events

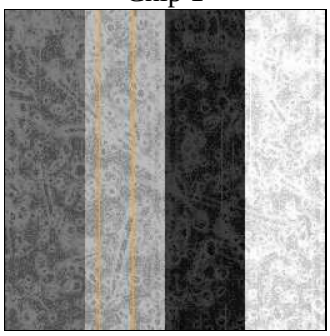


2.1.2 Bias

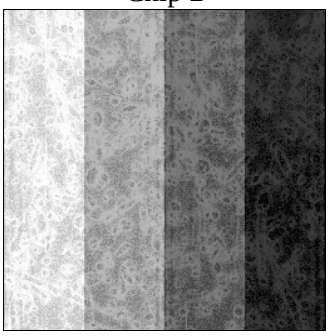
Chip 0



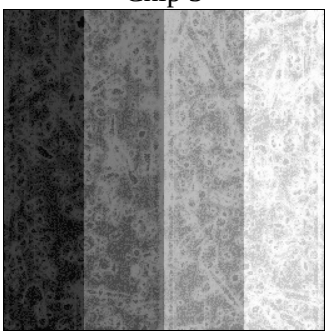
Chip 1



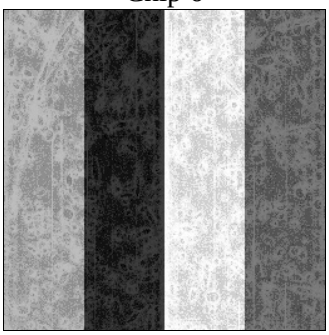
Chip 2



Chip 3



Chip 6



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.3.2.1	ASCDS version number
caldbver	4.3.1	
date	2010-10-19T21:22:02	Date and time of file creation
revision	6	Processing version of data

sched_exp_time	9500.000000	Scheduled observation exposure time
ontime	8677.5492540672	Sum of GTIs [s]
ontime0	8674.4724538475	Sum of GTIs [s]
ontime1	8677.6723740622	Sum of GTIs [s]
ontime2	8677.6313340664	Sum of GTIs [s]
ontime3	8677.5492540672	Sum of GTIs [s]
ontime6	8677.5902940631	Sum of GTIs [s]
l1events	398823	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
level 1 events	70741	69297	73604	109652	75529
rejected events	62911	61449	66185	68577	68538
rejected %	88%	88%	89%	62%	90%

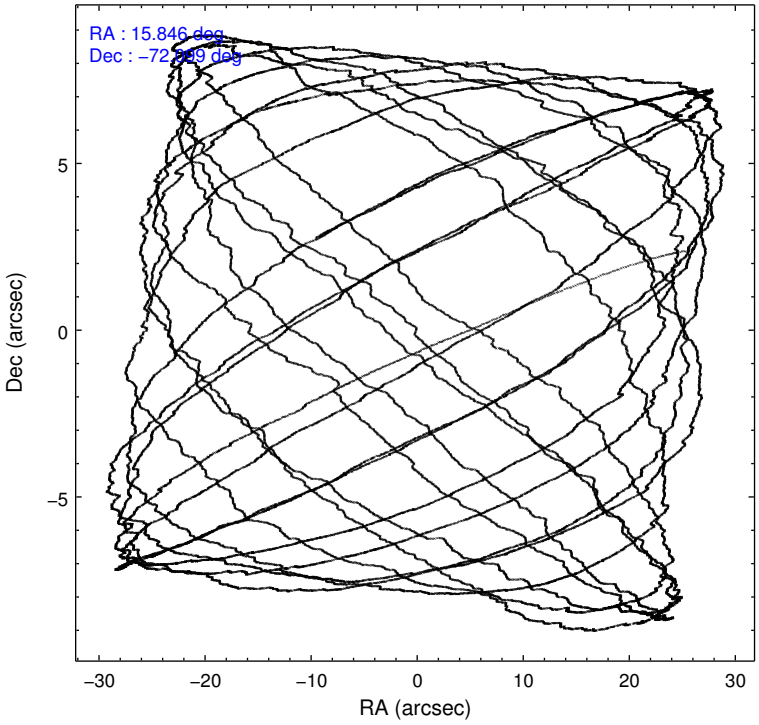
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
grade 0 events	2193	1984	2062	31061	1438
	3%	2%	2%	28%	1%
grade 1 events	15	9	9	270	13
	0%	0%	0%	0%	0%
grade 2 events	2794	2815	2751	6114	2711
	3%	4%	3%	5%	3%
grade 3 events	585	582	453	941	479
	0%	0%	0%	0%	0%
grade 4 events	517	564	454	938	444
	0%	0%	0%	0%	0%
grade 5 events	1497	1564	1324	1529	1570
	2%	2%	1%	1%	2%
grade 6 events	1744	1914	1707	2042	1920
	2%	2%	2%	1%	2%
grade 7 events	61396	59865	64844	66757	66954
	86%	86%	88%	60%	88%

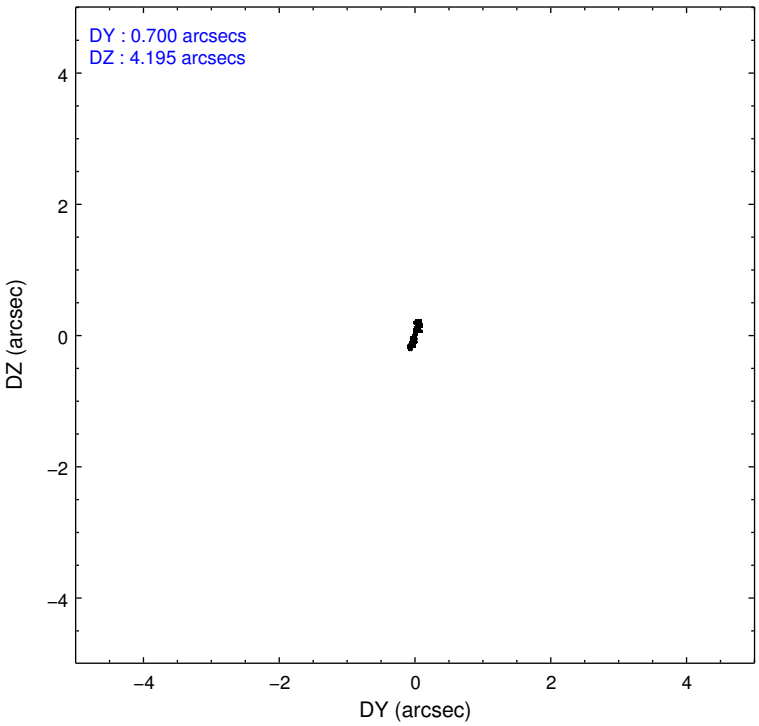
2.2 Compared Parameters

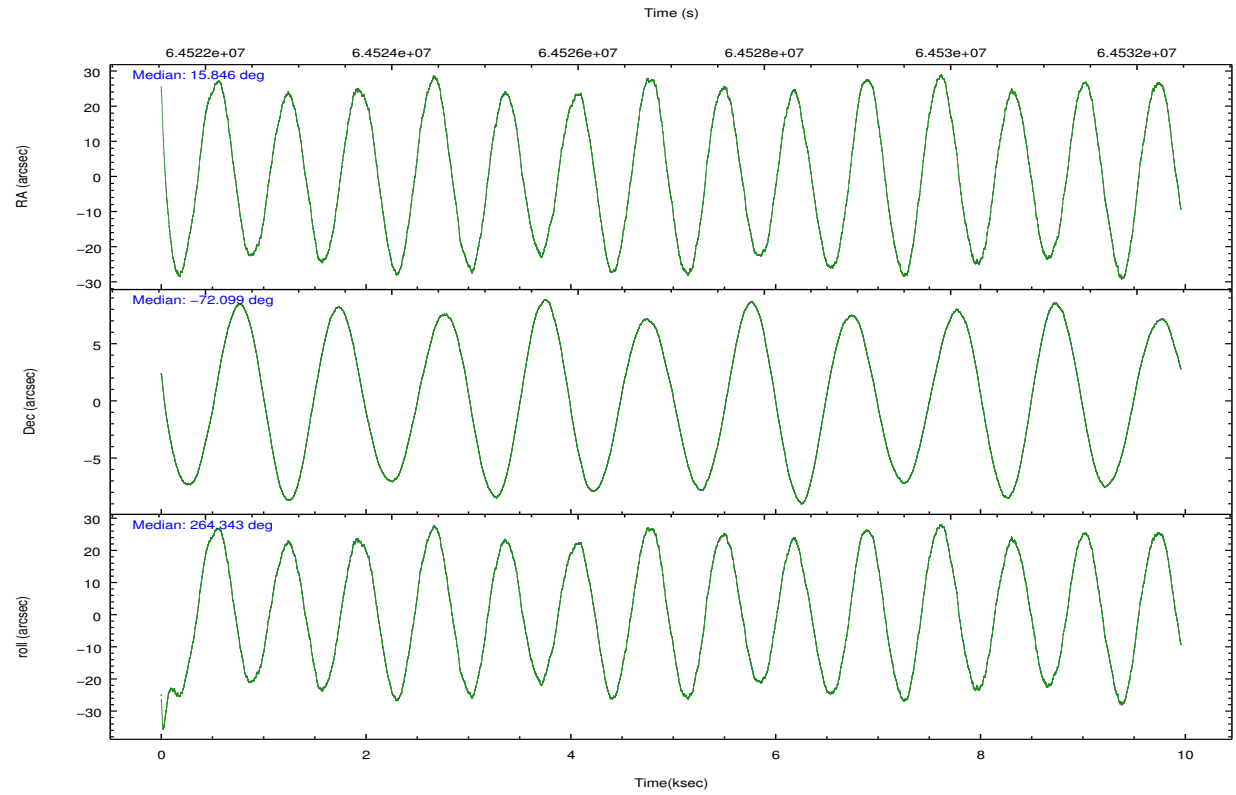
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-01236	ACIS-01236
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	15.809349	15.84558407840973
Pointing Dec	-72.073332	-72.09865667597448
Pointing Roll	264.100151	264.3432443412589
SIM focus pos (mm)	-0.782348	-0.7809083437167272
SIM defocus (mm)	0	0.001439871863259334
SIM translation stage pos (mm)	-233.592463	-233.5874344608287
SIM translation stage offset (mm)	0	-0.005018542100998502
Observation start time	64522478.184000	64521486.338001
Observation start date	2000-01-17T18:53:34	2000-01-17T18:38:06
Observation end time	64531978.184000	64532112.000887
Observation end date	2000-01-17T21:31:54	2000-01-17T21:35:12
Read mode	TIMED	TIMED

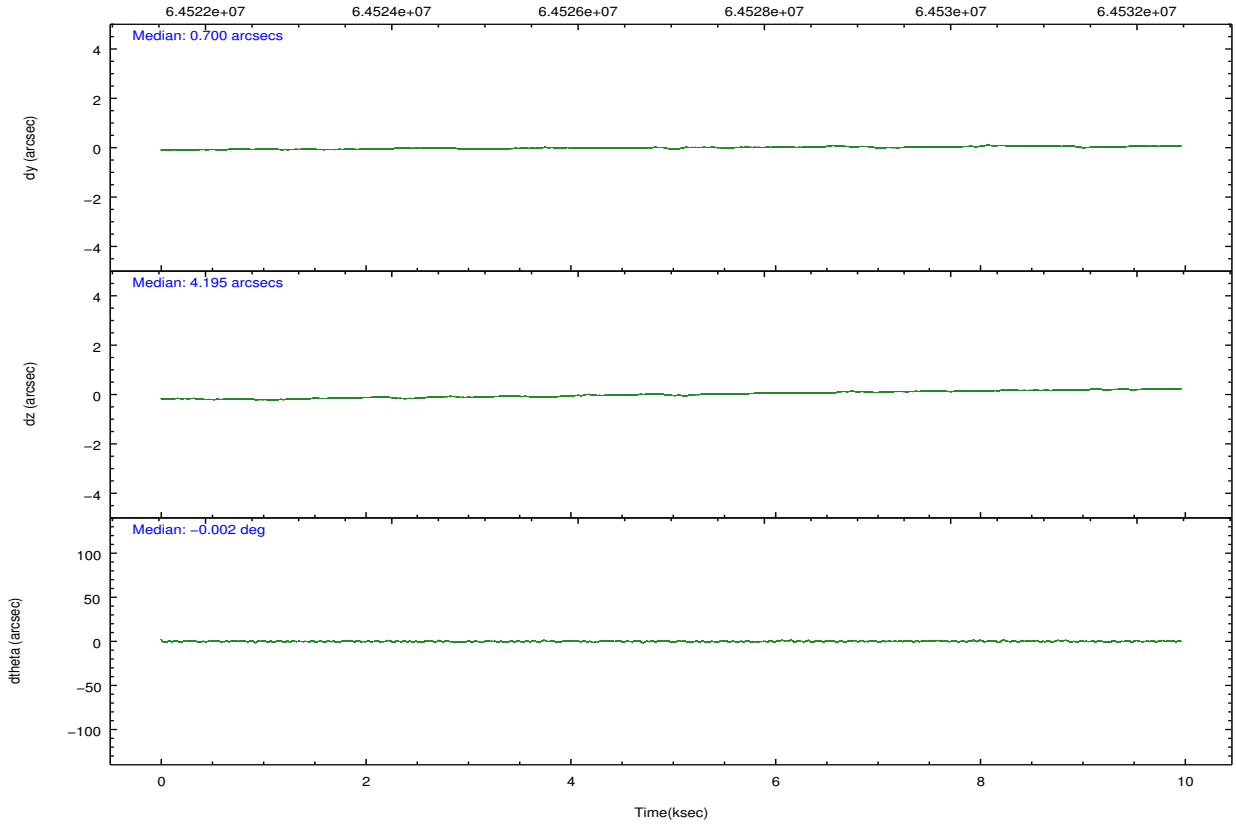
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 15.846 deg
Dec : −72.969 deg
Dec (arcsec)
RA (arcsec)
5
0
−5
−30
−20
−10
0
10
20
30


DY : 0.700 arcsecs
DZ : 4.195 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
6.4522e+07
6.4524e+07
6.4526e+07
6.4528e+07
6.453e+07
6.4532e+07
Median: 15.846 deg
RA (arcsec)
Median: −72.099 deg
Dec (arcsec)
Median: 264.343 deg
roll (arcsec)
Time(ksec)

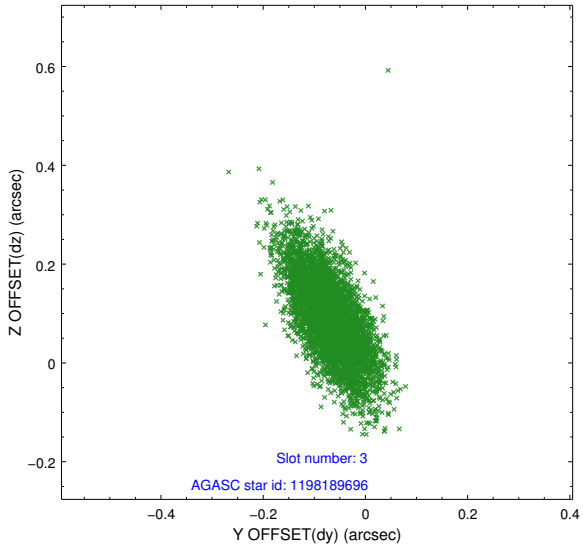

Time (s)
6.4522e+07
6.4524e+07
6.4526e+07
6.4528e+07
6.453e+07
6.4532e+07
Median: 0.700 arcsecs
dy (arcsec)
Median: 4.195 arcsecs
dz (arcsec)
Median: −0.002 deg
dtheta (arcsec)
Time(ksec)

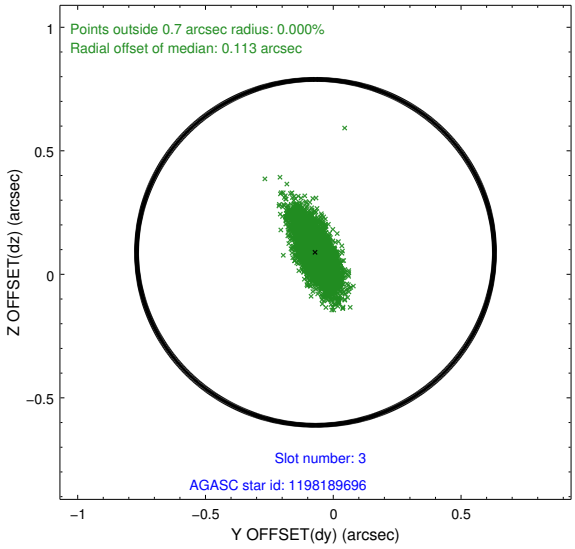
Slot Statistics

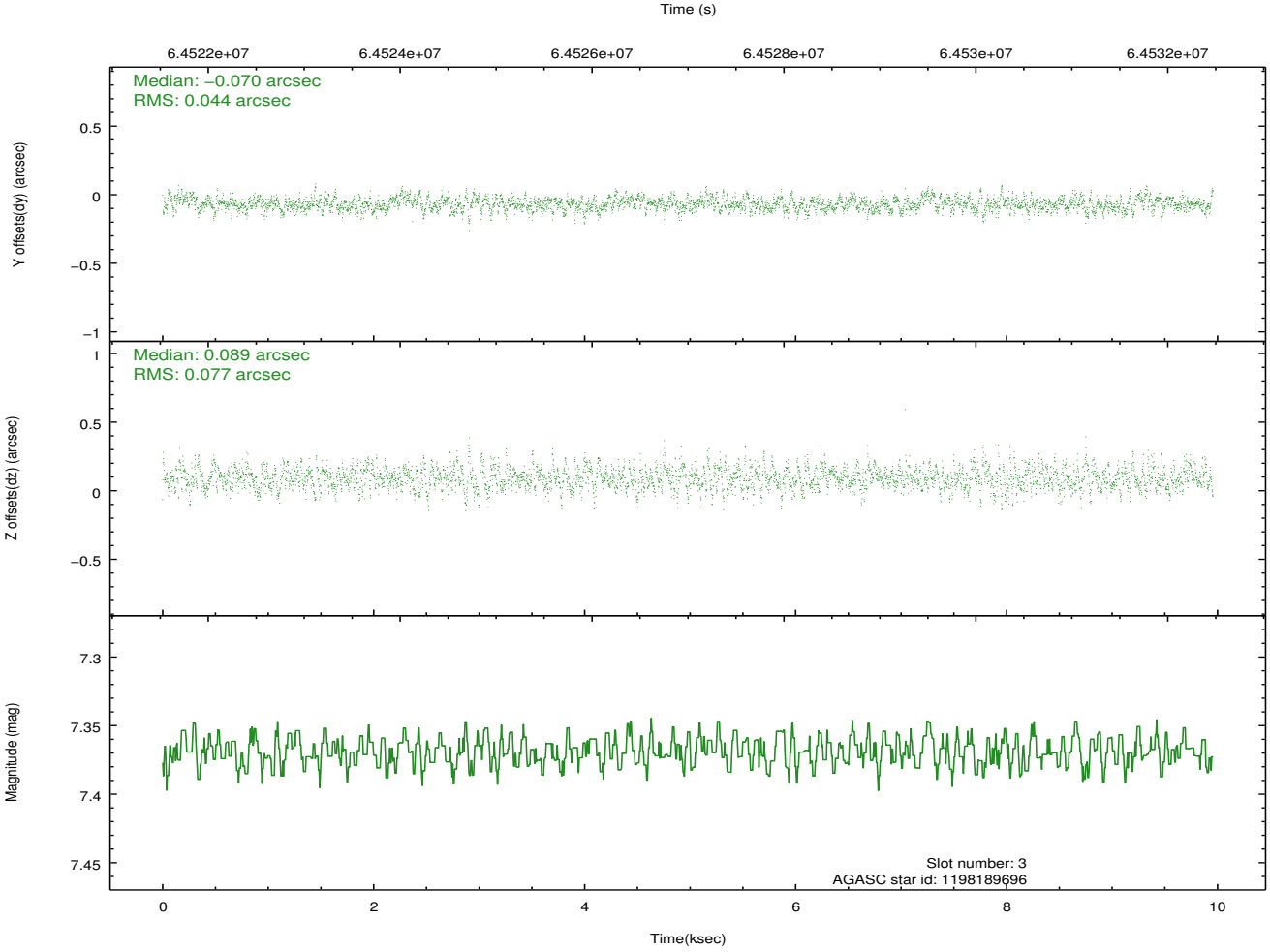
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-3	7.44	2429	0.015	0.178	0.008	0.015	0.000000	0.000000	56.60	-960.57
1	FID	ACIS-I-4	7.20	2429	-0.041	-0.075	0.008	0.013	0.000000	0.000000	2159.10	1071.90
2	FID	ACIS-I-5	7.23	2429	-0.074	-0.033	0.009	0.015	0.000000	0.000000	-1808.22	1070.45
3	GUIDE	1198189696	7.37	4859	-0.070	0.089	0.089	0.167	15.223750	-72.697522	2302.63	-392.61
4	GUIDE	1197885328	7.23	4858	-0.003	-0.055	0.100	0.181	16.283090	-71.733943	-1267.68	405.91
5	GUIDE	1197750936	7.56	4856	-0.017	0.075	0.096	0.172	15.387940	-71.549550	-1824.86	-671.40
6	GUIDE	1197884712	8.29	4857	0.093	-0.112	0.090	0.165	16.087398	-72.252690	611.35	369.39
7	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00

2.4 Star Slots

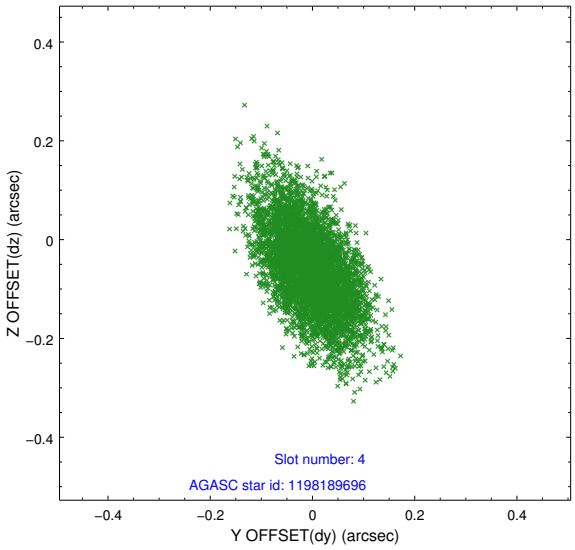
2.4.1 Slot 3

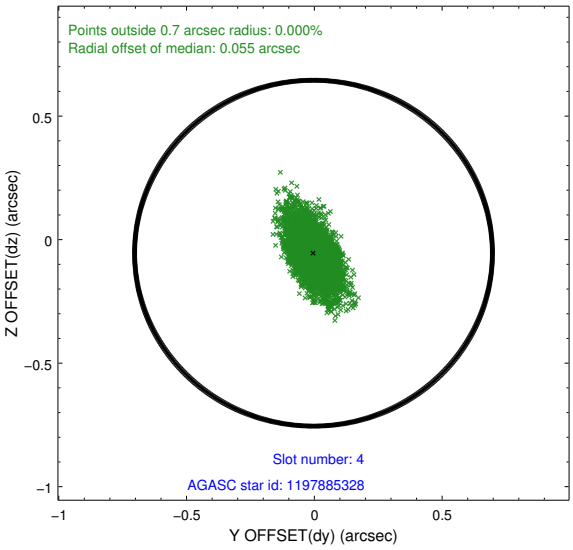


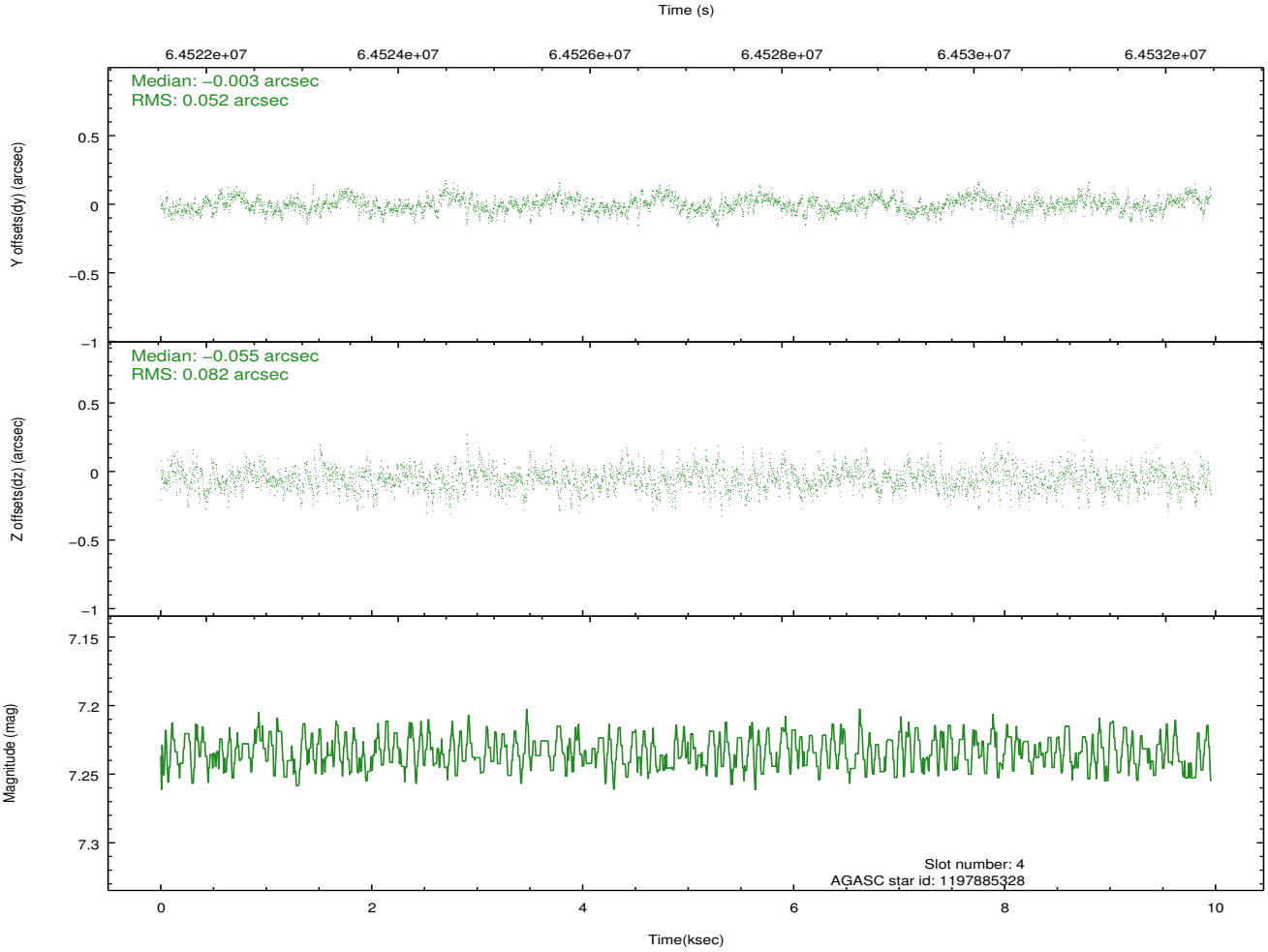




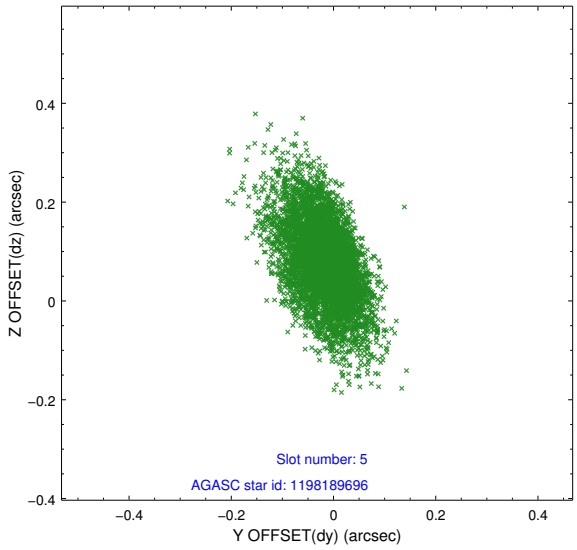
2.4.2 Slot 4

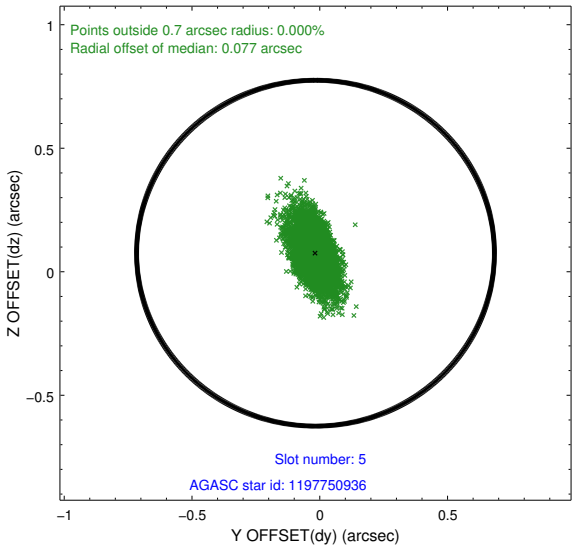

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1198189696

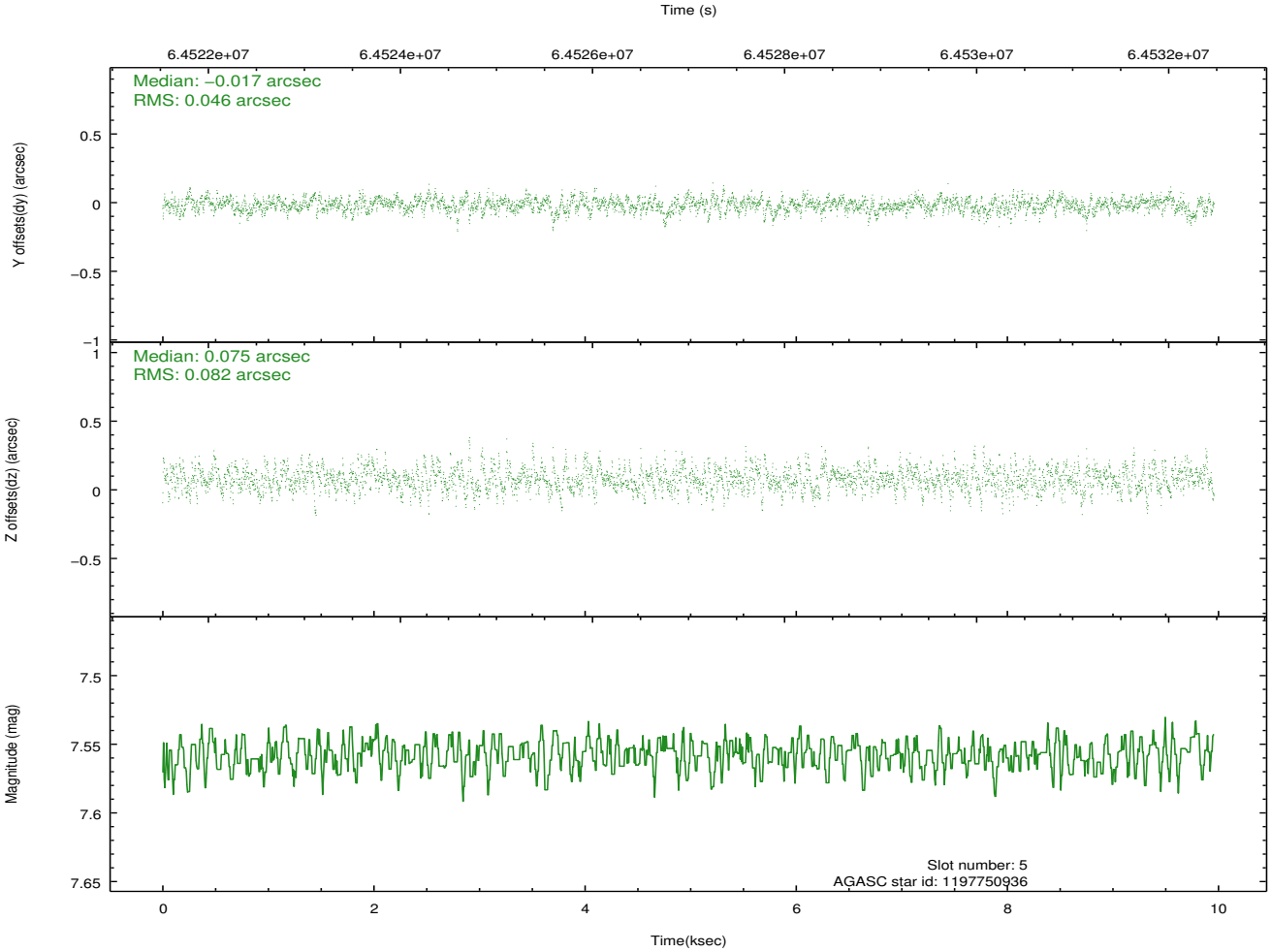

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.055 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197885328


Time (s)
Median: −0.003 arcsec
RMS: 0.052 arcsec
Y offsets(dy) (arcsec)
Median: −0.055 arcsec
RMS: 0.082 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 1197885328
Time(ksec)

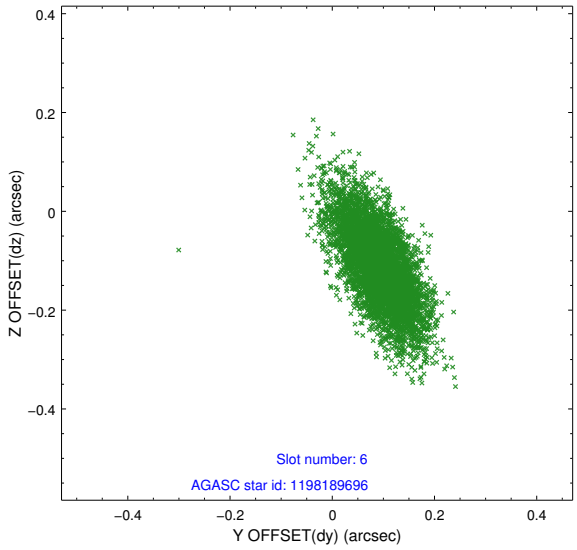
2.4.3 Slot 5

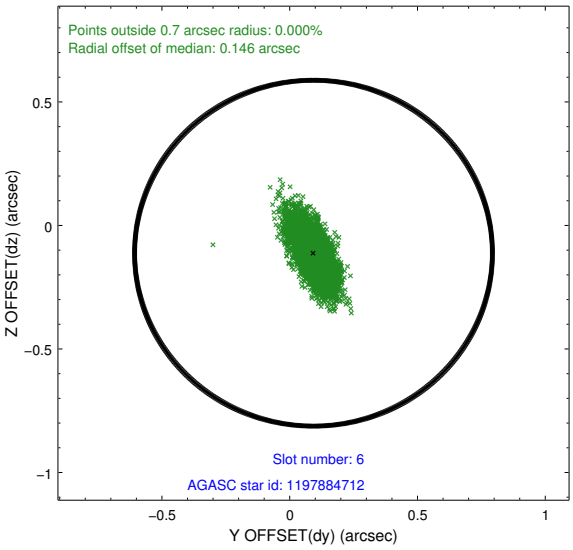

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1198189696

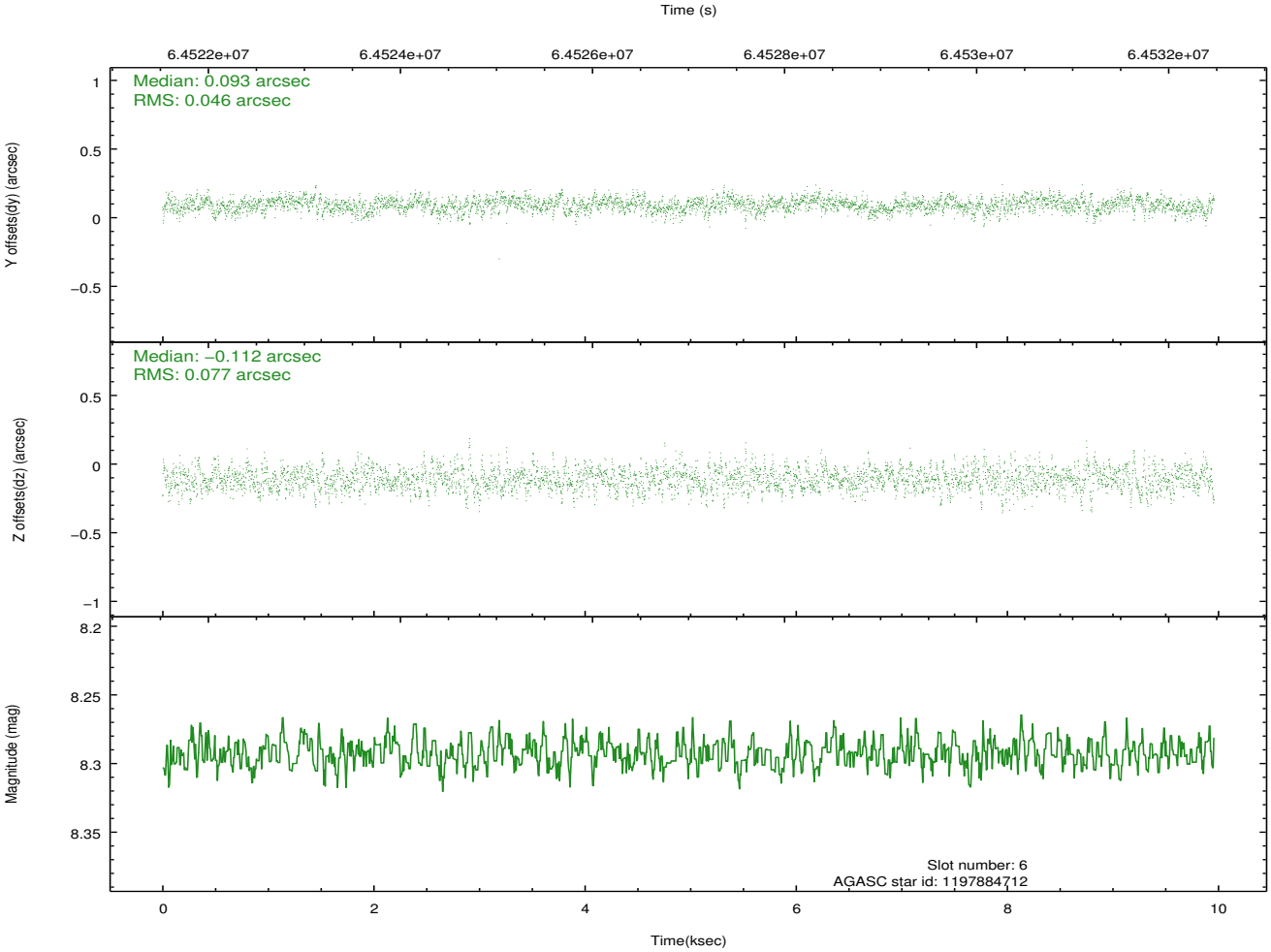

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.077 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1197750936


Time (s)
Median: –0.017 arcsec
RMS: 0.046 arcsec
Y offsets(dy) (arcsec)
Median: 0.075 arcsec
RMS: 0.082 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 1197750936
Time(ksec)

2.4.4 Slot 6

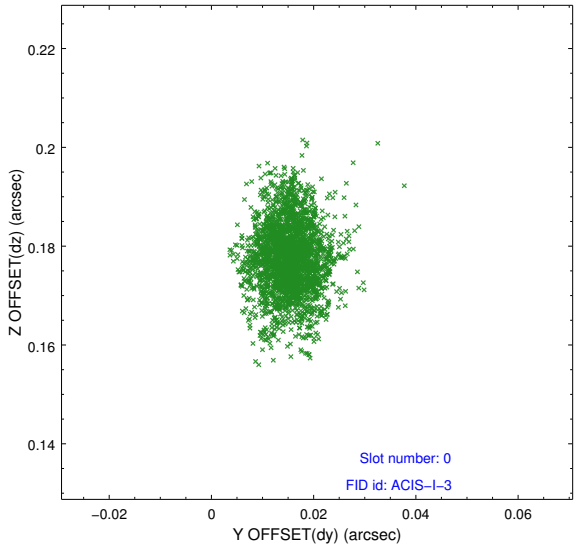

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1198189696

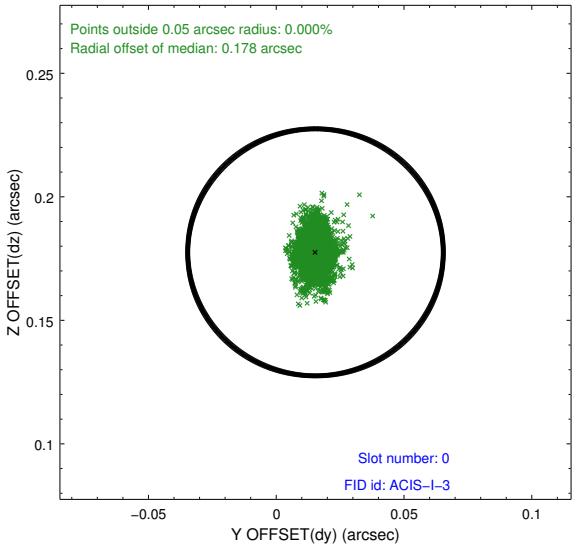

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.146 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197884712

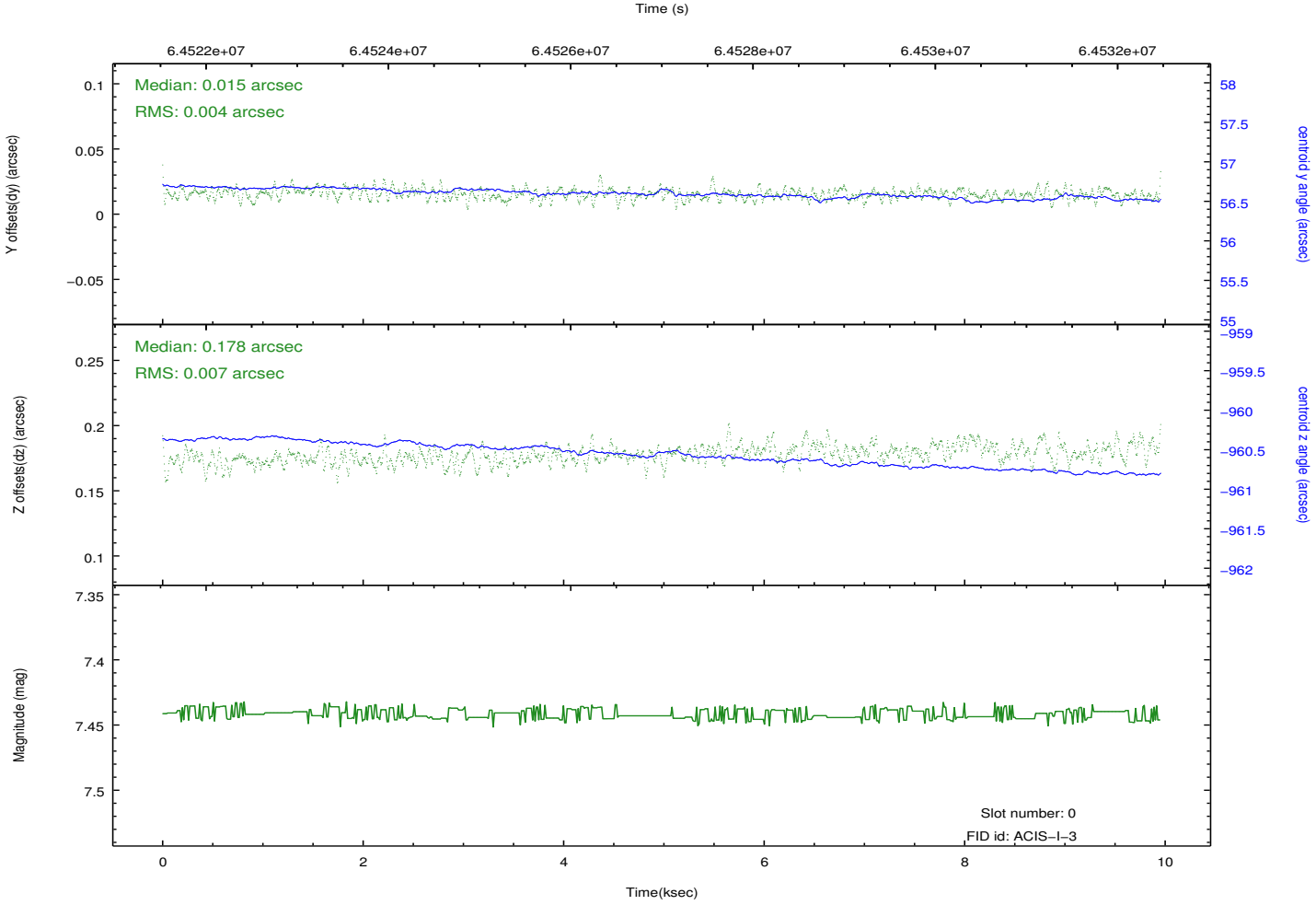

Time (s)
Median: 0.093 arcsec
RMS: 0.046 arcsec
Y offsets(dy) (arcsec)
Median: −0.112 arcsec
RMS: 0.077 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 1197884712
Time(ksec)

2.5 FID Slots

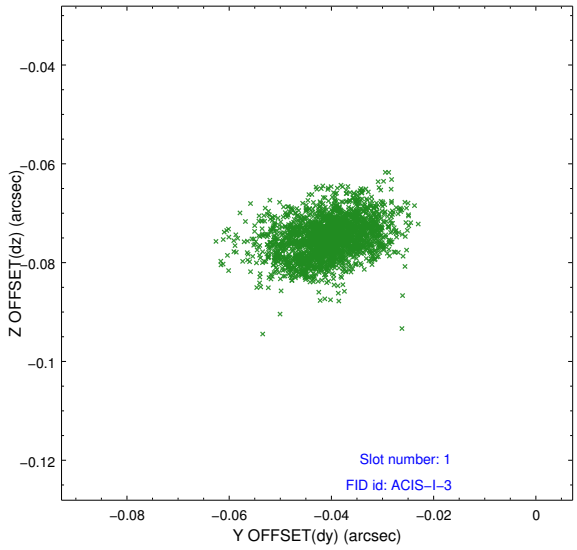
2.5.1 Slot 0

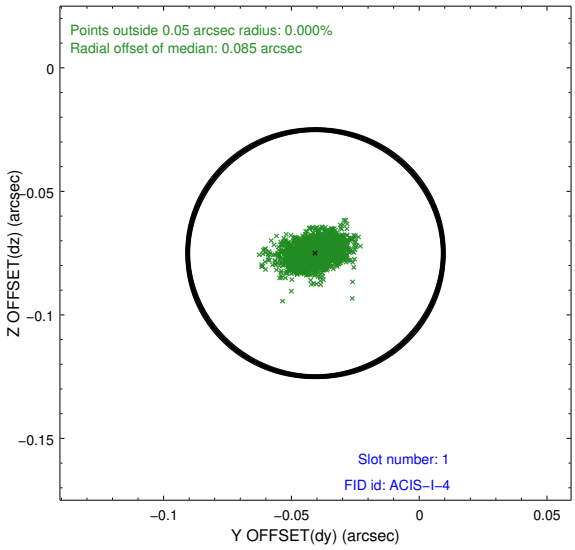


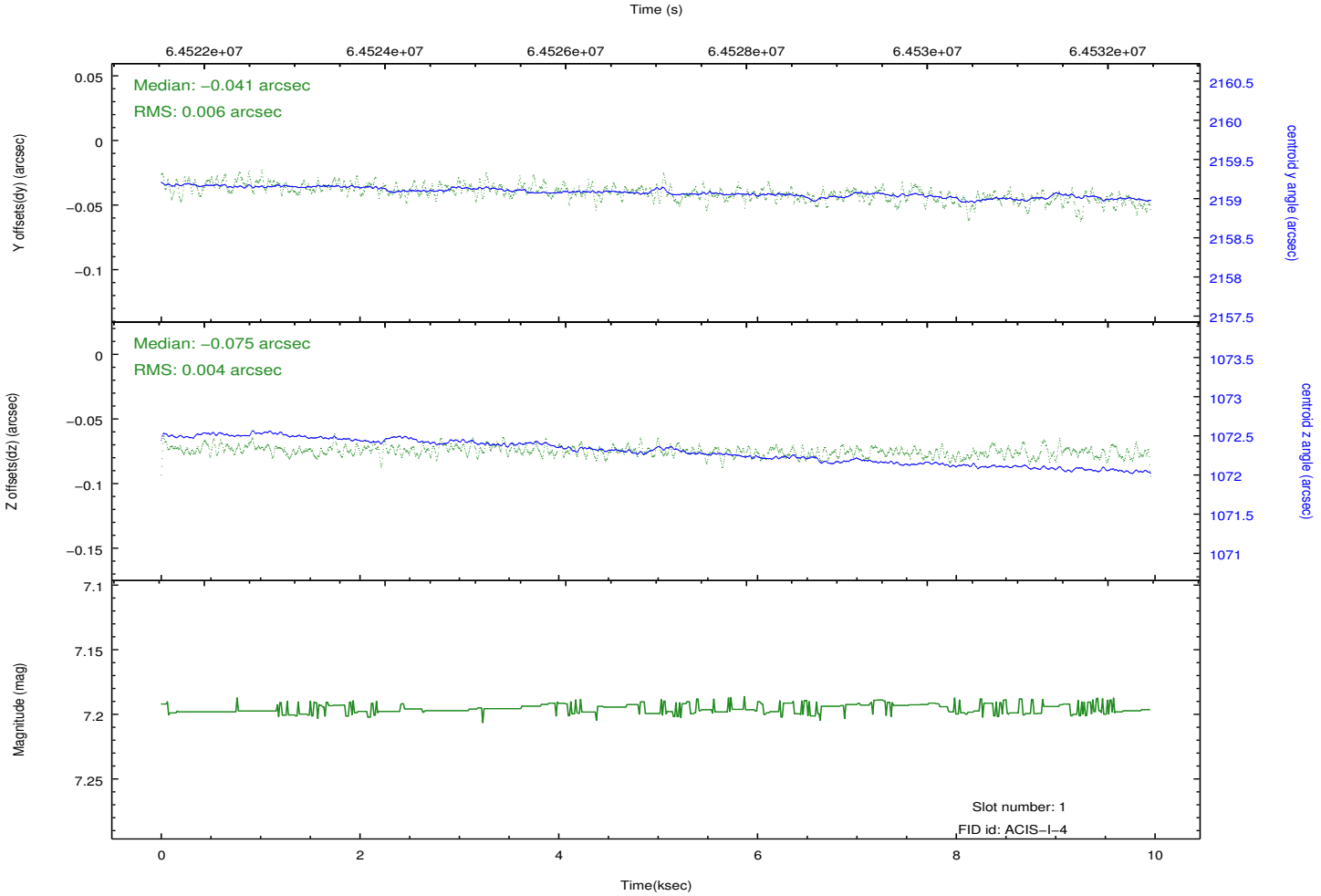




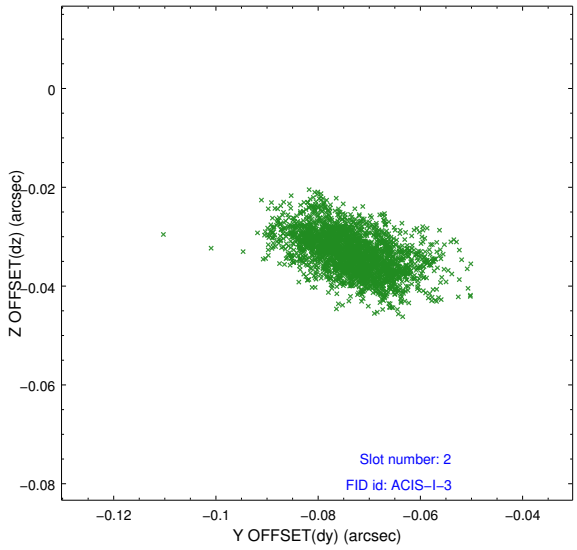
2.5.2 Slot 1

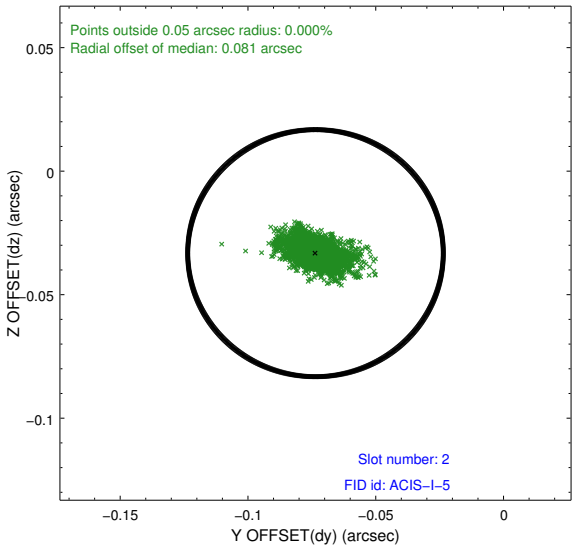

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−3

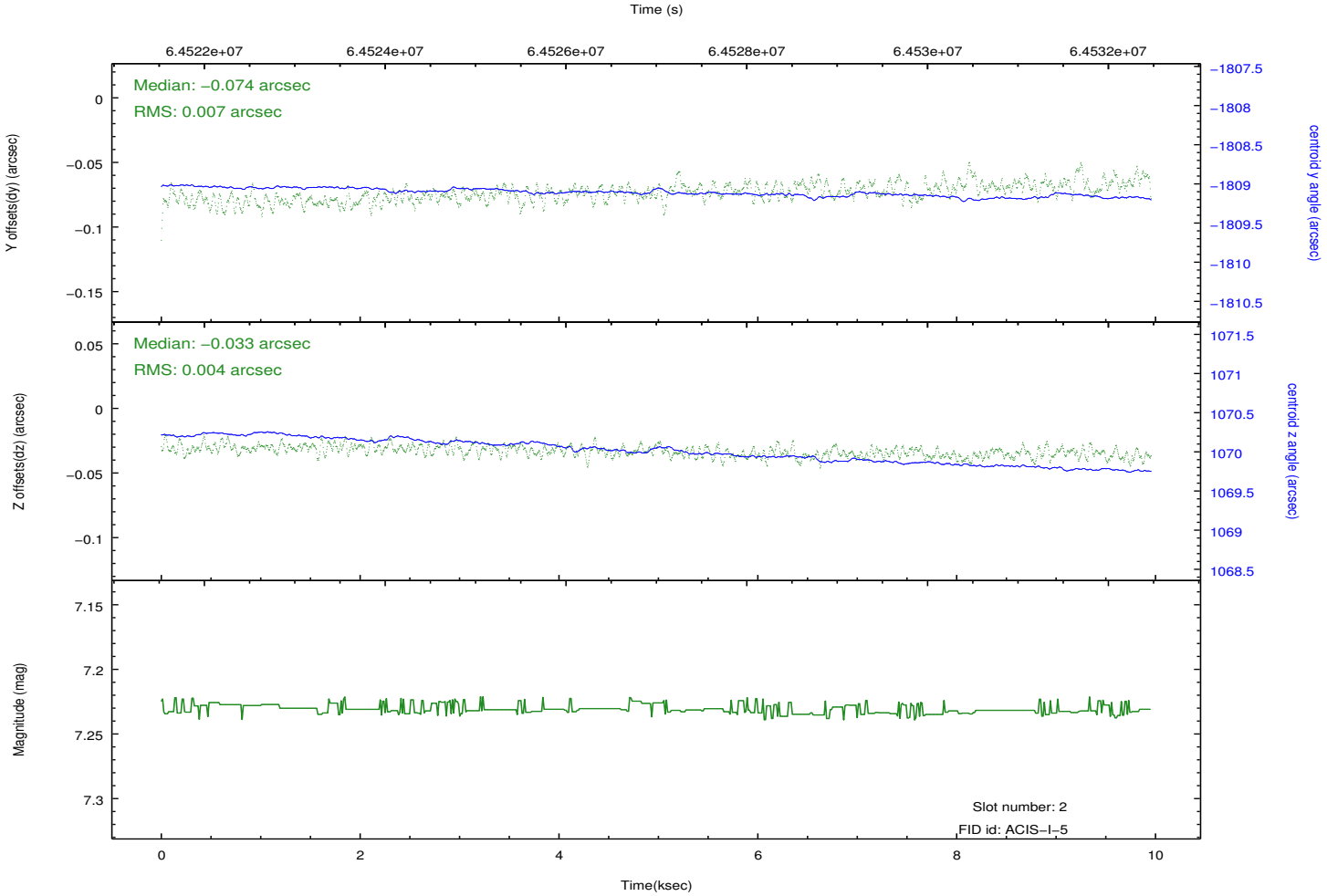

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.085 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4


Time (s)
Median: −0.041 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.075 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−4
Time(ksec)

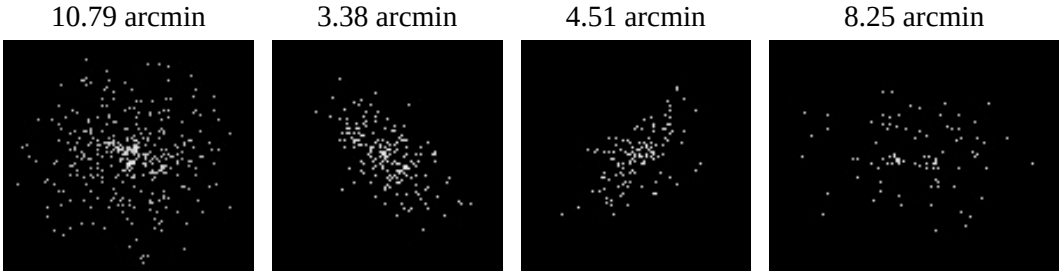
2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−3


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.081 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Time (s)
Median: −0.074 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.033 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−5
Time(ksec)

3 Point Sources



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2010.10.26
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.678

A.2 Comments

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The guide star in slot 7 was removed manually from the aspect solution
due to poor data quality. The aspect solution is not expected to be
degraded by removing one guide star from the solution.
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A spatial region of the original bias map for CCD = 1 suffered from
anomalously high data values. Pixels in the event data that were
bias-corrected by one of the original affected bias pixels may have an
apparent energy shift. While the change in energy is expected to be
small (~20 eV), it depends on many parameters that have not yet been
fully explored for this bias anomaly. The bias map for CCD = 1 has been
reconstructed for this processing to remove this anomaly using scaled
data from a comparable bias map from another observation. The pixels
affected by the anomaly are bounded by sky coords:
(15.44567,-71.94990),(15.42685,-71.94930),(15.40891,-72.00164),(15.42778
,-72.00224)

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The focal plane temperature is approximately -110C during this
observation. This reprocessing of the data applies no CTI correction
because none is available for this temperature at present.

The ACIS CTI correction has not been calibrated at this temperature,
because it was early in the mission, and ACIS had not yet been lowered
to the standard -119.7 C. Both front and back illuminated chips are
affected. However a T_GAIN correction has been applied to the BI chips
(ACIS-5 and ACIS-7) data included here.

The ACIS spectral response calibration is less accurate at these warmer
temperatures than it is at -119.7 C. Users whose science objectives
depend on the most accurate spectral response (ie: fitting line-rich
spectra) may notice an effect. Users whose science objectives do not
depend on the most accurate spectral response should not notice an
effect.
```