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September 4, 2002

To: MIT XIS Team
From: Mark Bautz
Subject: Summary of XIS team meeting, 28 August 2002
& Astro-E2 science working group meeting 29-30 August 2002, Kona, HI

SWG Meeting

We heard status reports on the spacecraft, XRT, XRS and HXD. I presented XIS status (presentation is available on the internal XIS web page (http://space.mit.edu/ACIS/ixis) There were no major surprises. Highlights are summarized below:

Spacecraft: Current weight is 1704 kg, 4 kg over budget. Power is 72W higher than Astro-E1, but this can be accomodated by operating batteries to greater depth of discharge. Mechanical coolers are now baselined for the XRS outer shield.

XRT: Precollimators have been designed to reduce stray X-ray light. These will increase vignetting slightly (50%-point reduced from 18arcmin to 16 arcmin field angle.)

XRS: The principal topic for science discussion was whether to change the XRS detector array from the baseline "bilinear" 2x18 pixels format to a square, 6x6 pixel array. The SWG strongly recommended that the square array be adopted, on the grounds that if offers better energy resolution (6 eV vs 12 eV), faster response time (3 msec vs 10 msec/event) and hence less pileup, cleaner, more gaussian pulse-shapes (due to factor of 10 better heatsink). Although two square array options were debated (the so-called nominal array, with 624-micron pixels and and a field of view of 2.9x2.9 arcmin, and a 6x6 array with larger pixels and a 3.8x3.8 arcmin field of view and slightly worse energy resolution, in the end it was decided to recommend the "nominal" square array because it required no perturbation to the XRS schedule.

Observing time allocation: Following an 1-month checkout period, SWG members will get 100% of the observing time for the first 6 months of XRS life, 25% for the next 12 months, 15% of the following 12 months. General observers will have access to all subsequent time, even if the XRS lifetime extends past month 31. (XRS lifetime depends on (currently unknown) cryocooler duty cycle, and is expected to be 3.5 years, 2.4 years and 1.9 years for cooler duty cycle of 100%, 50% and 0%, respectively.) General observers will access to all time after XRS cryogen has expired.

Proposal and future SWG meeting schedules. Two SWG meetings are expected in each of the next two years. The next meeting will take place at ISAS in early 2003, and may coincide with the 10th anniversary of the launch of ASCA (Feb 20th 2003).

SWG target selection will proceed as follows: Short proposals will be due in October of 2003. Final proposals are due in Feb 2004, and the final target list will be completed by June 2004, in time for the release of AO-1.

XIS Team Meeting

The XIS team meeting, and resulting action items are summarized in the attached memo by Tadayasu Dotani. A few additional notes follow:

- The inside of the XIS bonnet baffle is NOT gold-coated; instead, it is painted black this will enhance the flourescent Al K lines in the background. We should ask Japanese team members if it would be possible to have some kind of optically black coating (paint) applied over gold-coated aluminum.

  The issue of (filter) contamination was raised during the SWG. It is not clear whether it is practical to warmup the XIS filter. We need to discuss with Japanese team members the extent to which the bonnet/filter assembly can be warmed by spacecraft maneuver.

- We really have not done anything to reduce light leaks from ASCA levels. Kitamoto is now responsible for characterization of the XIS optical blocking filters. Keith Gendreau pointed out that GSFC has an extensive (optical) filter characterization facility; We should consider having GSFC characterize XIS filters. We should also urge our Japanese colleagues to conduct a simple stray light test on the bonnet assembly.

Dotani-san's summary of the XIS team meeting follows:

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Memo of the XIS local meeting

Date: August 28, 2002. 16:00-17:30
Place: Hawaii, Hilton Waikoloa village hotel
Attendants: M. Bautz, J. Doty, G. Prigozin, K. Koyama, T.
Tsuru,
            H. Matsumoto, K. Hayashida, E. Miyata, T. Dotani,
M. Ozaki,
            S. Kitamoto

Agreed items:
1. We need to decide whether or not we fix the bugs in FPGA
by the end of this year.   If we fix the bugs, it is also
necessary to modify the EM-AE before Jan. 2003 to verify the I/F with
DE before the first integration test.
2. Gain of AE may be changed by adjusting the integration
time of the signal with the microcode.   We will not change the video
board.
3. Calibration source should not illuminate the corner of the
charge injection gates.   We will select the far corner of
segment D.
4. Next XIS meeting is tentatively assigned to October 28
(Mon) at MIT.

A/I list
MIT:
1. Send the parameters of the heatsink, which is necessary
for the background simulation, to Ozaki-san.
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2. Discuss on the radiation tolerance of DAC in AE/TCE among MIT people.
3. (Added by mwb, 31 Aug 02) Consider feasbility/utility of performing early heatsink qualification tests before delivery of TECs.

Japan:
1. Estimate the background rates for the different materials (Cu and Al) of the heatsink using GEANT4. (Ozaki)
2. Confirm the design of the calibration source (holder) to illuminate the far corner of Segment D. (kitamoto)
3. Send the short-plugs, saver cables, etc., used in Astro-E to MIT. (Ozaki)