HIRES Dewar Upgrade

Project Monthly Report – November 20/2

Progress

Optics

A plane window has been fabricated to take the place of the Field Flattner during dewar testing.

The Field Flattner is at Livermore awaiting coating.

Detectors

Gerry Luppino sent us two MIT/LL devices from lot 16. These were the devices he tested and were the basis for telling MIT all was OK and they should process with lot 18. We have tested one of the devices (16-10-2). Lloyd Robinson will test the second one Oct 20. On 16-10-2 we see the tree ring pattern just like on lot 18. The effect is less than in lot 18 and the QE is better, peaking at just over 80% at 7000A but dropping to about 40% at 3500A.

We have had no further word from MIT or Lesser.

Mechanical

Virtually all of the dewar components have been fabricated. Most notable has been the completion of the dewar housing and the optical baffle. The getter is completely assembled and ready to go. Five pictures and illustrations are included.

Vacuum system

The vacuum sub-assembly has been all welded together after the coldfinger was properly sized for length and the transfer pipe was appropriately adjusted as a result. Although the rear dewar lid has not been finalized, the disk will be used as an end cap to pull a vacuum on the system and check for leaks. This test is scheduled for this week and hopefully in time or publication of this report.

Support system

Drawings for modifying the existing dewar support frame (horse collar) are near completion and should be released this week. Proper placement of the focal plane relative to the frame requires that the dewar be moved in "z" by .7" relative to the existing system. This move causes an interference between flanges on the LN2 can and the support stiffeners on the frame. Frame

modification had already included an enlarged opening at the top to pass the upper flange of the transfer pipe thru. Additional modifications now will include revised features for securing the two vertical tension rods that come up from the dewar.

The lateral and lower support vanes are being redesigned (due to the .7" shift). Drawings will be released to the shop this week.

PAVE Connector

Pave's engineering department is now working on our feedthru connector. They anticipate first drawings for our review by week's end.

Electronics

More time than was expected was spent in designing and layout of the printed circuit board to adapt our existing 61-pin cable CCD connector to a new 68-pin cable connector. Once the pinout of the low crosstalk version of the 68-pin connector was obtained from 3M, a fair amount of time was spent in mapping the CCD signal assignments from one connector to the other and insuring that high analog signal fidelity was maintained. The printed circuit board for this connector adapter will arrive this week and will be mounted to a custom box housing currently being made in the machine shop.

At the end of this week, we are hoping to test this adapter board and its associated pleated foil cable assembly using the CCD Lab's test dewar with 2 MIT/LL CCDs from DEIMOS' blue mosaic. The main impetus is to compare the overall noise performance of this new cabling scheme to that of our existing CCD controller cabling. Unfortunately a low crosstalk version of the pleated foil cable assembly will not be available until December 7. But we still can get a good idea of the overall performance of these new cable assemblies.

Work has now started on the printed circuit board layout of the analog switch board, which resides in the electronics box.

Evaluation of the 3nd generation video board from Bob Leach at San Diego State University began the in last 2 weeks. It was hoped that these new video boards would not have the crosstalk between channels that the existing 2^{nd} generation video board inherently has. Performance evaluation of this 3nd generation video board will continue, but it was discovered that this new video board no longer offers the provision of generating +/- 5 volts from its onboard regulators. Thus this board requires that an additional set of power supplies (+/- 6.5 volts) would

need to be added to our CCD controller. This is physically impossible in our controller chassis. Talks with Bob Leach will be taking place this week to see if we can still order the 2nd generation video boards that are currently being used on ESI and DEIMOS.

Software

No report this month

Issues and Concerns

We are still trying to make up time lost (3 weeks) waiting for a decision on the detectors to be used.

Schedule

The schedule remains unchanged, although there is the possible three week delay mentioned above. A copy of the project schedule is attached.

Budget and Spending Profile

The budget report is attached. We have currently spent 31% of the project funds.