

HIRES Dewar Upgrade

Project Monthly Report – October 20/2

Progress

General

On October 7 at the SSC meeting, a decision was made to proceed based on using MIT/LL devices in the dewar. With that decision being made, the team is proceeding with all scheduled tasks.

Optics

We are planning to fabricate a plane window to take the place of the Field Flattenor during dewar testing.

The Field Flattenor is on its way to Livermore for coating.

Detectors

We have received 3 E2V devices from CIT, two engineering grade and one engineering grade device with a mechanical defect. These devices are currently being stored in the CCD lab. If the MIT/LL devices do not turn out to perform or are unavailable when we need them, we will then start a program to run the E2V devices in our lab in preparation for using similar devices in HIRES.

Mechanical

Now that the decision has been made to stay on course with MIT chips, we have proceeded to document piece part and assembly drawings of the CCD assembly and its components. Another package of drawings have been submitted to the Instrument Shop and they have started on this second batch of parts.

Jerry Cabak is following up loose ends on the documentation involved in the parts and component assemblies we are getting directly from Gerry Lupino. This relates to the moly bases, clips, and the flex circuit assemblies. The plan is to have all the dewar internal parts and assemblies documented with drawings by the end of the month.

A number of parts have completed fabrication in the last month. Some of the parts are shown in the attached pictures:

strap clamp - this part clamps down each end of the main strap assembly to bridge the conducting path between the cold finger and the CCD assy

coldfinger clamps & mating block - the clamps attach to the dewar end of the cold finger and bolted to the mating clamp once the internal assy is fitted into the dewar

dewar - latest picture of the dewar

getter parts - picture shows the getter screen assembly and the fill plug

backplane - first of three backplanes, this one shown attached to the rotating and assembly fixture

Electronics

Further review and preliminary design time was spent to address the use of E2V CCDs in the HIRES upgrade. The mapping and routing of the additional bias voltages and clocks of the E2V devices within the cabling and electronics box was designed and reviewed.

There has been a delay in testing the proposed cables that pass the CCD signals from the controller to the electronics box. It was discovered that there is a special "low-crosstalk" option on the cable assembly connectors, where signals are interlaced with grounds on both rows of the connectors. A new prototype cable assembly incorporating these low-crosstalk connectors was ordered and should be arriving within 2 weeks.

Until the new pinout of these low crosstalk connectors was obtained from 3M (the cable manufacturer), work on the cable adapter board and electronics box analog switch board was delayed. The needed information from 3M was received earlier this week and now printed circuit board layout has resumed for both of these boards. The adapter board is expected to be completed before the new prototype cable assembly arrives at which time the cable will be tested on the CCD lab's SDSU-2 CCD controller with a MIT/LL CCD.

A PO was written to Pave Technologies for making custom hermetic connectors from a 51-pin micro D-sub connector. Once they receive the PO, Jerry will be ironing out the mechanical constraints of these connectors.

Software

No report this month

Issues and Concerns

We lost some time (3 weeks) waiting for a decision on the detectors to be used.

Schedule

The schedule remains unchanged, although there is a possible three week delay that we are trying to make up.

Budget and Spending Profile

The budget report is attached. We have currently spent 21% of the project funds.