

HIRES Dewar Upgrade

Project Monthly Report – Feb 20/3

Progress

Optics:

The Field Flattner has been coated by LLNL and is back at Lick.

Detectors:

We have received and are testing MIT/LL device 17-7-1. This device is very good in the UV, but has a visible stain on one side. If this device were used on the blue-most side of the mosaic, it would be on the outside edge. The stain does not show in the flat field images after the device has been exposed to a pure O₂ environment overnight. Tests are ongoing to determine the stability of the treatment, but after four days of being cold, the device continues to perform well. A CCD with a similar Lesser coating has been stable for several years at Mt. Hamilton, as long as it is kept cold. The next test will be to thermal cycle 17-7-1.

We have just received four more devices, two of which have the Lesser's coating. We will start testing on one of these devices immediately and hope to complete all the testing in about six weeks.

Mechanical:

Kirk Gilmore did a second pass assembling and fit testing the CCD mosaic. All the goals of the first assembly test review were met, however some new ones popped on this iteration. As a result, the tapped holes on the underside of the stage plate will be counter-bored with .25 OD, .010 deep features for locating the CCD assembly to the top of the support spider. The delrin spacers will now seat into counter-bored features on both sides of the spacers. This change should be incorporated by the end of the month.

The vacuum pump and controller have been received from CARA.

The concept, layout, and basic design of the electronics box are complete. Detailed features are being designed now and part drawings will begin to be released by the end of the month.

CCD interconnect board 'cabling' mock-up is in progress. Facsimile components are being made and will be used with existing parts and assemblies to determine CCD IC board configuration along with flex circuit and cable lengths. This activity should be complete this week.

Electronics:

The 2nd generation SDSU-2 video boards for HIRES, including one spare, were ordered last month and are expected to arrive by April 1. The majority of hermetic

SMA video connectors are expected to arrive by 2/21. Unfortunately, the custom 51-pin hermetic connectors aren't expected to arrive until the second week of March which does not give us much time to test them and their flex circuit connection. We will try to speed up this shipment.

Printed circuit layout continues with the electronic box analog switchboard, the MIT/LL CCD interconnect board, and the flex circuit that connects the CCD interconnect board to its hermetic connector. The main focus was on the flex circuit and the CCD interconnect board to complete the internal dewar CCD connections. The flex circuit design and layout has been completed and will be sent out for fabrication once the required cable length has been determined. The CCD interconnect board layout is nearly completed but the final location of components on the board are on hold until the sizing and placement of the dewar's electronic components have been finalized.

Now that the design of the electronics box enclosure and shields have been completed, layout of the analog switchboard resumes with the updated mechanical placements and constraints. A second iteration of mechanical placements and constraints will take place with the updated analog switchboard layout.

Software:
No report this month

Issues and Concerns:
Keeping to the schedule both for delivery and testing of the CCDs, and for development of the electronics circuit boards.

Schedule:
The schedule is attached complete with the critical path.

Budget and Spending Profile:
To the end of January the project has spent \$373,000 or 49 % of the project funds, not including contingency. A summary of the budget is attached.