

Cassegrain ADC

Monthly Report, July 20, 2003

I. Narrative

A. Summary

At this time we expect to complete the Preliminary Design in August and be ready for a PDR in September.

B. Technical Status

1. Overall Assessment of Scientific and Technical Status

The optical/mechanical design is progressing.

2. Accomplishments of the Past Month

Drew Phillips has been looking at distortion and residual dispersion effects. The slit mask design software will need to design for ADC IN or ADC OUT, as there is a plate scale change of order 0.3 arcsec from center to edge, but distortion changes as the ADC extends are small (significantly under 0.1 arcsec for the ADC going from null to fully extended) and can be ignored. A review of residual dispersion shows it is less than ± 0.1 arcsec at zenith distances less than 60-deg.

We have received responses from Zygo and Kodak for the finishing of the ADC Prisms as received from Corning in wedged form. We only have a verbal quote from Zygo presently, but expect a written quotation shortly. Quotes for grinding, polishing and figuring the wedged blanks to our specifications are: Kodak: \$48,485.00
Zygo: \$46,000.00

We are exploring the effects of using a lesser homogeneity grade glass so have asked Corning to quote on supplying the material in two lesser grades than they originally quoted. The original quote for a blank in Grade 3C that would yield the wedged pieces was \$255,240.00. Grade 3D would cost \$178,000.00 and Grade 3E would cost \$168,000.00. If we used Grade 3D, one homogeneity step down from 3C, we would see a savings of \$77,240.00. The cost of wedging at Corning would be the same as quoted for the 3C material.

Drew Phillips investigated using grade D homogeneity quartz for the ADC prisms instead of grade E. He found that the image growth was about 0.5 microns. The normal spot size is of order 100 microns, thus going to the lesser grade will not cause significant problems.

We have settled on a mechanical design for mounting the prisms in the cells. This is a three point mount that does not incorporate RTV. Have changed the drive design to a single lead screw with 2 ball or roller slides to hold the prisms parallel. The inner surfaces of the prisms are parallel, but tilted 0.8 deg to the optical axis, per Drew's optimization of the image quality. Keck has provided preliminary hard point locations that I expect to work into the design.

3. Problems

Have changed the mechanical conceptual design more than expected; however, we think that the design has improved as a result and it should not impact schedule.

C. Schedule and Budget Status

1. Overall Assessment of Progress and Expenditures

We seem to be on schedule and a little under budget at this time.

2. Problems –none to report

None at this time

D. Proposed Actions Regarding Problem Areas

1. Scientific or Technical

2. Schedule

3. Budget

E. Anticipated Accomplishments in the Next Month

We expect to complete the preliminary design by mid August

F. Other Issues and Information Deemed Essential to Include

II. Schedule

A. Current Schedule -attached

B. Graph of Earned Value -attached

C. Analysis and Discussion of Project Performance

III. Confirmation of Amendment of Project Schedule and Milestones – at this time we believe we will finish near the scheduled date

IV. Confirmation or Amendment of Project Budget –no requests for use of contingency funds at this time.

V. Project Financial Summary –attached.