

## Statement of Work

### Remove Windows to TI DMD and Replace with Temporary Windows

#### Purpose

In 2009, the Astrophysics Division at NASA Headquarters established the Strategic Astrophysics Technology (SAT) solicitation as a new technology maturation program. Our SAT proposal, "*Development of DMD Arrays for Future Space Missions*" (PI=Z. Ninkov, RIT) was recently selected for full funding. The proposal calls for the purchase of Texas Instruments 0.7" XGA DMD's for modification and testing in preparation for research on a larger, and more expensive DMD called the Cinema chip that would actually be used in a space mission.

The window to TI's DMD's was selected for use in movie projectors and therefore is tuned to transmit visual light. Our SAT proposal is aimed at making DMD's sensitive to ultraviolet light. An alternative to replacing the window with a UV-transmissive window, is to remove the TI window and hold the bare DMD's in a container that prevents degradation by dust or oxygen in the air.

#### Statement of Work

This PR is for the removal of the existing window of 4 government-supplied 0.7 XGA DMD's, replacement with a temporary window that can be removed for brief periods for testing and calibration, and installation in the government-supplied Discovery 4100. This work is to be performed on a best-effort basis. Shipment is needed within 4 weeks after receipt of customer's Discovery 4100 board set, DMD's, and temporary windows. The government will also supply the DMD containers.

The government-supplied replacement windows will meet the following specifications:

- a) L: 1.4" (+0"/-0.010")
- b) W: 1.1" (+0"/-0.010")
- c) THK: 0.118" (+0.005"/-0.010") Typical (but can be as thin as 1 mm)
- d) Bevel: 0.020" (+/-0.005") face width at 45 degrees (+/-15 degrees)
- e) Scratch/Dig: 20/10 or better if possible, depending on material
- f) Surface Figure: < /= 1 fringes P-V at 0.633um
- g) Wedge: 8 arc minutes (+/- 2 arc minutes) suggested if used with laser sources
- h) Wedge if chosen, to be along long axis within 5 degrees.
- i) AR/AR coating of choice, up to a 2 mm uncoated band allowed around perimeter.

This work is to be performed on a best-effort basis. Shipment of the modified DMD's is needed within 4 weeks after receipt of the customer-supplied Discovery 4100 board set, 4 DMD's, 4 replacement windows, and 4 DMD protective containers.