OPTI 509L Tianquan Su

Experiment Plan

Experiment plan

- Test the original windows with interferometer;

- Phase-shifting Interferometer will be used to test the surface quality of the windows. Numbers, sides and orientations will be marked. (Orientation is important when comparing the change of the front surface.)

- Test the windows after bonded to aluminum plates:

- Three different kinds of adhesives:
  GE RTV 157, 3M 2216 (epoxy), Loctite 326.
  (adjustment maybe made)
- For each adhesive, 2 different thickness and 3 different bond area will be tested. (18 different geometry types in total)

- Test windows under heated up temperature

- The Glass-adhesive-metal assembly will be put into a temperature chamber. For each geometry configure, it will be tested under three different temperatures.

- Datum analysis

- All the surface information will be compared to show the window surfaces change under different geometries and temperatures.

Hardware situation

Name	Status	Description
Windows	ready	2" diameter, 0.91 mm thickness
Adhesives	3M2216 ready GE RTV 157 pending Loctite 326 pending	Some important data (like Poisson's Ratio) is missing, two of the adhesive have not been nailed down
Al plates	ordered	2"x2"x0.5", AL 6061-T6, Bond surface will be sanded by ourselves
Interferometer	Under setting	Zego phase-shifting interferometer
Temper-chamber	Under design	A beach cooler will be used to make the chamber. Window for the chamber has been made.
Micrometer syringe	Ready	For small amount adhesive contral