



Office of the Vice President  
and Chief Financial Officer  
Finance and Accounting Division  
*Purchasing and Disbursement Services*  
<http://purchasing.ufl.edu/>

102 Elmore Hall  
PO Box 115250  
Gainesville, FL 32611-5250  
352-392-1331  
352-392-8837 Fax

September 9, 2009

ADDENDUM NUMBER 1 ON INVITATION TO NEGOTIATE# ITB10MN-116

**Please see the attached responses to vendors' inquiries.**

This addendum shall be considered part of the Contract Documents for the above mentioned project as though it had been issued at the same time and incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original Contract documents, this addendum shall govern and take precedence. Bidders are hereby notified that they shall acknowledge receipt of the addendum.

Sincerely,

Michael Neff  
Purchasing Coordinator, II

**PLEASE ACKNOWLEDGE RECEIPT OF ADDENDUM AND RETURN WITH YOUR BID. FAILURE TO ACKNOWLEDGE YOUR ADDENDUM COULD CONSTITUTE REJECTION OF YOUR BID.**

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VENDOR NAME

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VENDOR ADDRESS

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SIGNATURE

**Responses to Vendors' Inquiries**

**1. When will the vendors receive the substrate? Is there a schedule with dates that vendors can have as to when they will receive the substrates?**

The coating vendor will receive the first polished substrates within a week after a contract is signed and a Purchase Order is issued by the University of Florida (within 1-2 wks). Nine 150 mm x 75 mm substrates (the flat mode cleaner mirrors) and 12 75 mm x 25 mm substrates (steering mirrors) have been polished and can be shipped to the coating vendor at any time after the PO is issued. The six mode cleaner curved mirrors are in the final polishing stage, and we anticipate that they will be finished within a month from now (by Oct 15th).

**2. a) The coater will NOT be etching any serial numbering on the finished part, correct?**

This is correct. The coating vendor will NOT be etching any serial numbering. The Serial Numbers are applied on the substrates by the polishing vendor.

**b) Is it a requirement to measure the following - surface electric field, absorption, total scatter?**

We do not require measurement of the surface electric field, absorption and total scatter, as long as the coating vendor provides documentation that in previous projects it consistently meet our specifications and/or goals. However, if the vendor has the capability of providing the above measurements, we would encourage the vendor to discuss this in the proposal.

**c) If so, can the measurements for absorption and electric field be accomplished on witness pieces?**

If awarded, these measurements would be performed on witness pieces.

**d) Can the coater have copies of the polisher's surface defect analysis and digital images, surface figure and microroughness, for each part?**

All the data supplied by the polishing vendor according to Table 1 on page 4 of the Substrate Specifications E070078-A-D, E070079-A-D, E080503-A-D and E070084-A-D will accompany each uncoated substrate to the coater.

**3. Neither surface figure nor surface quality are specified on the coated substrate drawings (E070085-v1-D, E070086-v1-D, E070091-v1-D, and E070092-v1-D). Given this, we are either to assume that there are no requirements (unlikely), or that they are the same as the uncoated substrate specifications. If we assume that they are the same as the (uncoated) substrate specifications, there could effectively be no margin for the effects of the coating process if we are given substrates that are right at the edge of specification. Please clarify per the below questions.**

**a) What are the surface figure requirements for the coated optics?**

Measurements of the radii of curvature for the curved mode cleaner mirrors are not available yet, but data provided for the flat mirrors (both IMCF and SM) show that the surface figure of these substrates is well within specifications, exceeding them for the majority of the optics.

For example, for the Side 1 of IMCF:

ROC over 80 mm aperture:

Specified: < 80 km

Measured: between 174 km and 4,600 km, with an average slightly above 1,000 km.

Astigmatism over 80 mm aperture diameter:

Specified: < 10 nm

Maximum value measured: 3.36 nm.

We expect that the coating process will add a contribution to the surface figure that is much less than the requirements for the uncoated substrates, so the coated substrates can meet the surface figure requirements of the uncoated substrates. However, for those optics that, after polishing, are close to the specification limits, the addition of the coatings should change the surface figure by no more than 1/3-rd of the figure distortion of the uncoated substrate, over the specified aperture. For example, for a deviation from flatness of an uncoated substrate of 80 km over the 80 mm diameter (10 nm sag), we expect that the ROC of the coated substrate will be no shorter than 60 km (13.3 nm sag).

If this requirement is outside the vendor's coating process, the vendor will provide an estimate of the expected variance in the surface figure from the addition of the coating and will discuss the cost impact for meeting these specifications.

**b) What are the surface quality requirements for the coated optics?**

We expect that the coating process will add no defects to the existent ones of the uncoated substrates. Based on the defect inspection data provided by the polishing vendor, our super-polished substrates are virtually defect-free, so the coated substrates will essentially meet the surface quality requirements of the uncoated substrates. The inspection data from the polishing vendor will be provided to the successful coating vendor with the uncoated substrates.

However, the coating vendor should discuss in the proposal if this requirement is too stringent, and will estimate the expected defect contribution from the addition of coating.