Composite Mirror Applications

Company Statement

Composite Mirror Applications Inc.

CFRP RICH Mirror
LHCb-Type

Optical Test and Reflectivity Report

Submitted to: Marco Contalbrigo, INFN

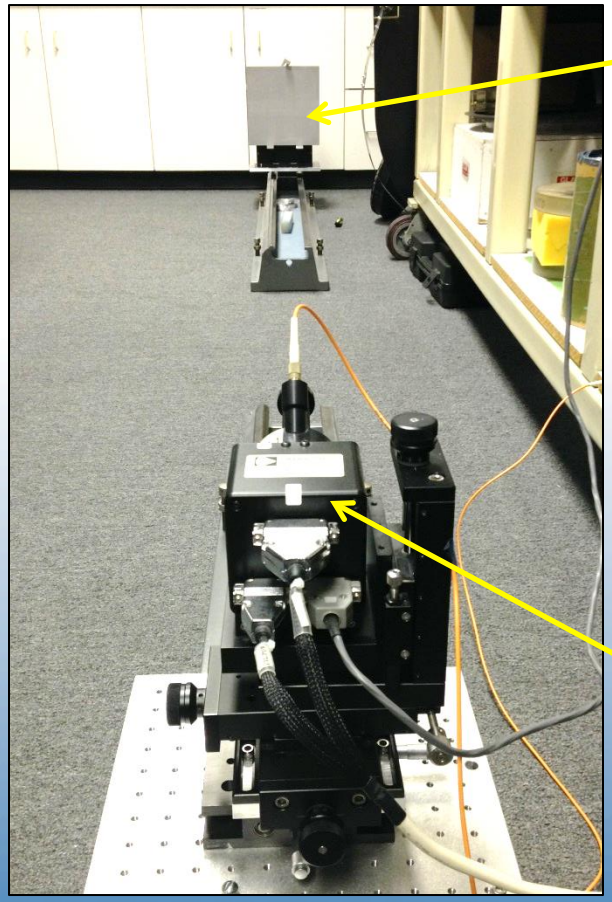
R. Romeo
Composite Mirror Applications

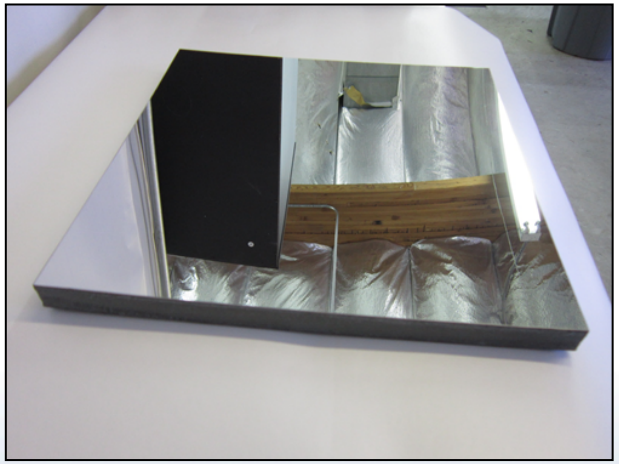
11 April 2014

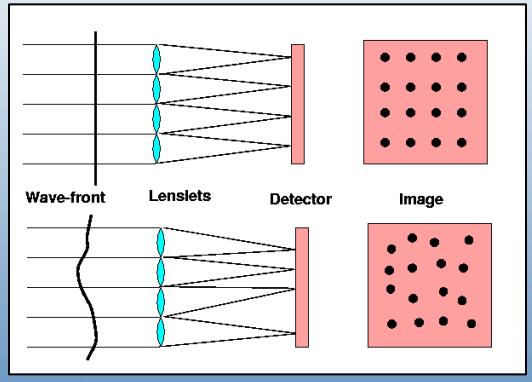
Wavefront Data

Composite Mirror Applications Inc.

The mirror was measured with a Shack-Hartmann wavefront sensor as shown in the image below. The test is a radius of curvature test.







Wavefront Sensor Test Description

Wavefront Data

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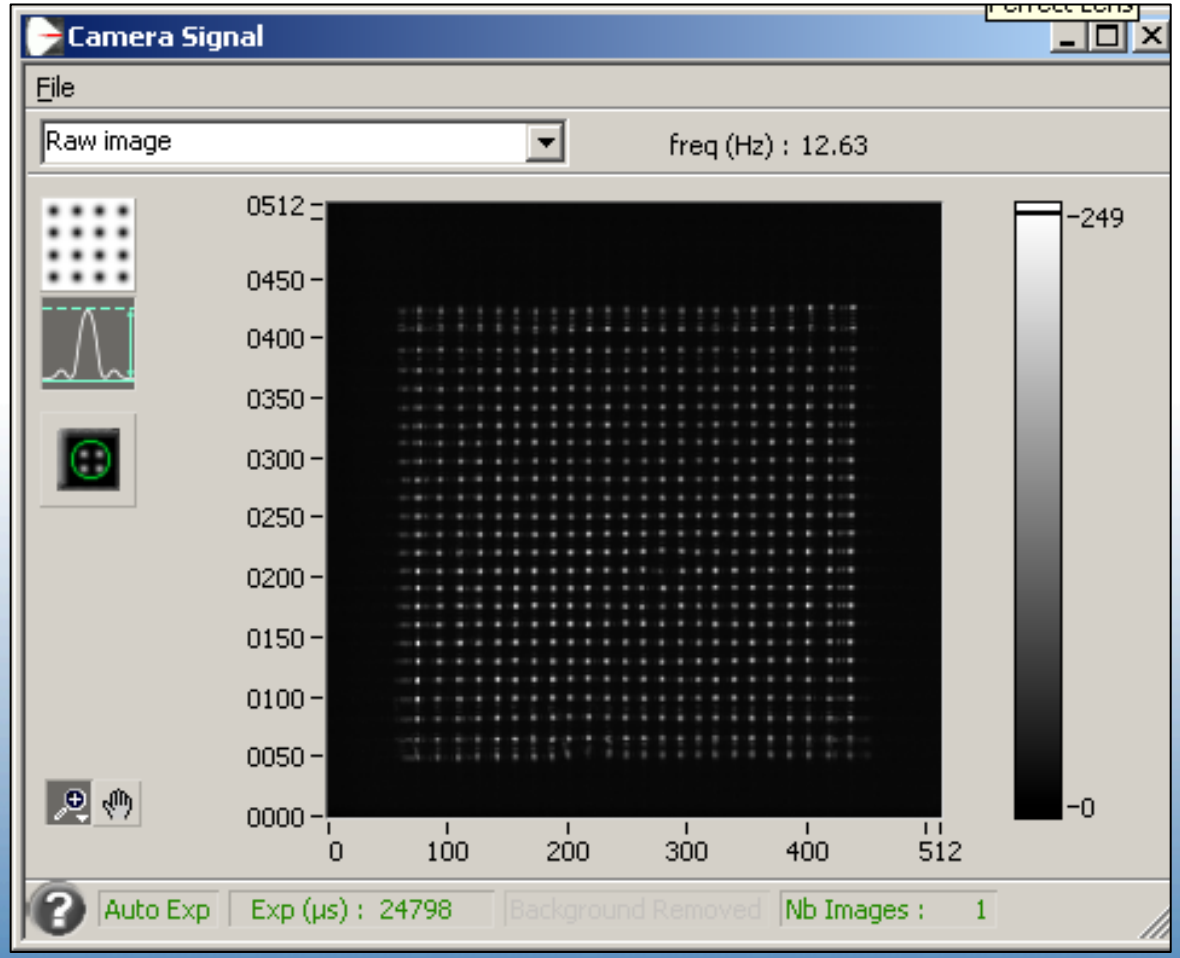
Camera signal showing the microlens array for slope measurements.



Camera Image, Raw data of full aperture of the CFRP mirror.

Wavefront Data

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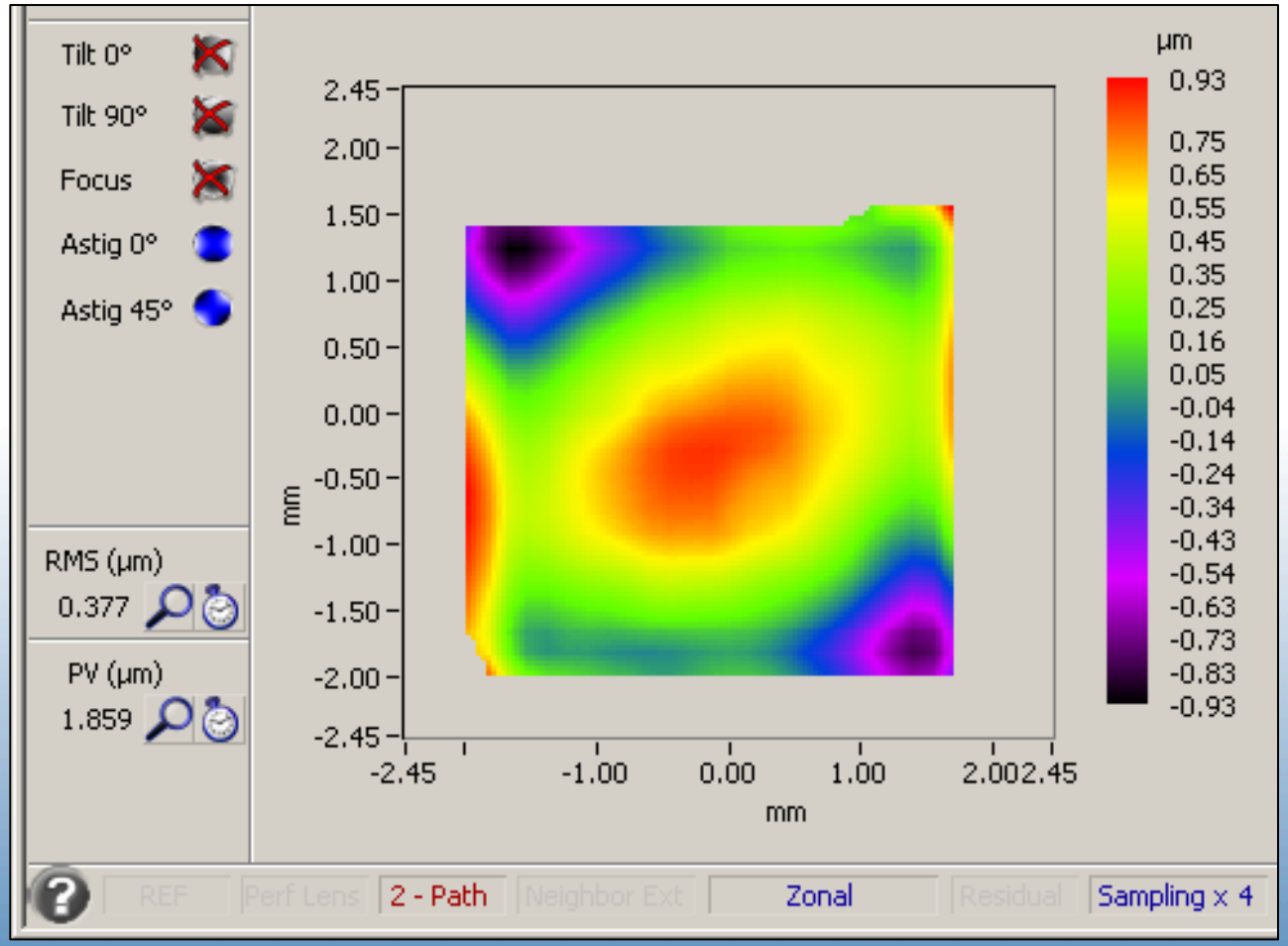
Surface map of the CFRP mirror shows errors of 1.86μm p-v surface, below the 2.5 μm p-v surface requirement.



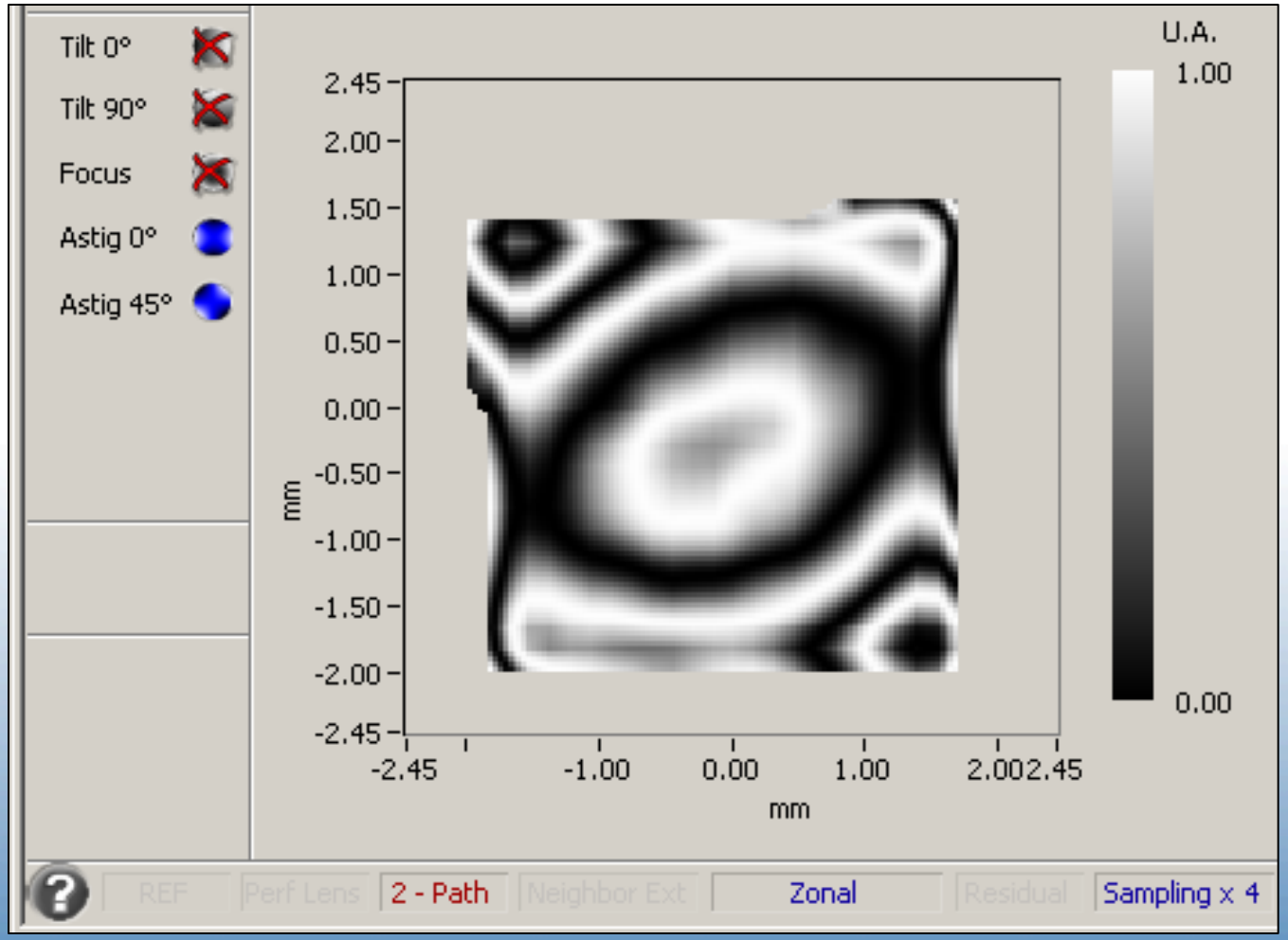
Surface Map of the full aperture of the CFRP mirror. Only tip, tilt and focus removed.

Error is 1.86 μm p-v on the surface.

Wavefront Data

Composite Mirror Applications Inc.

Synthetic interferogram of the CFRP mirror.

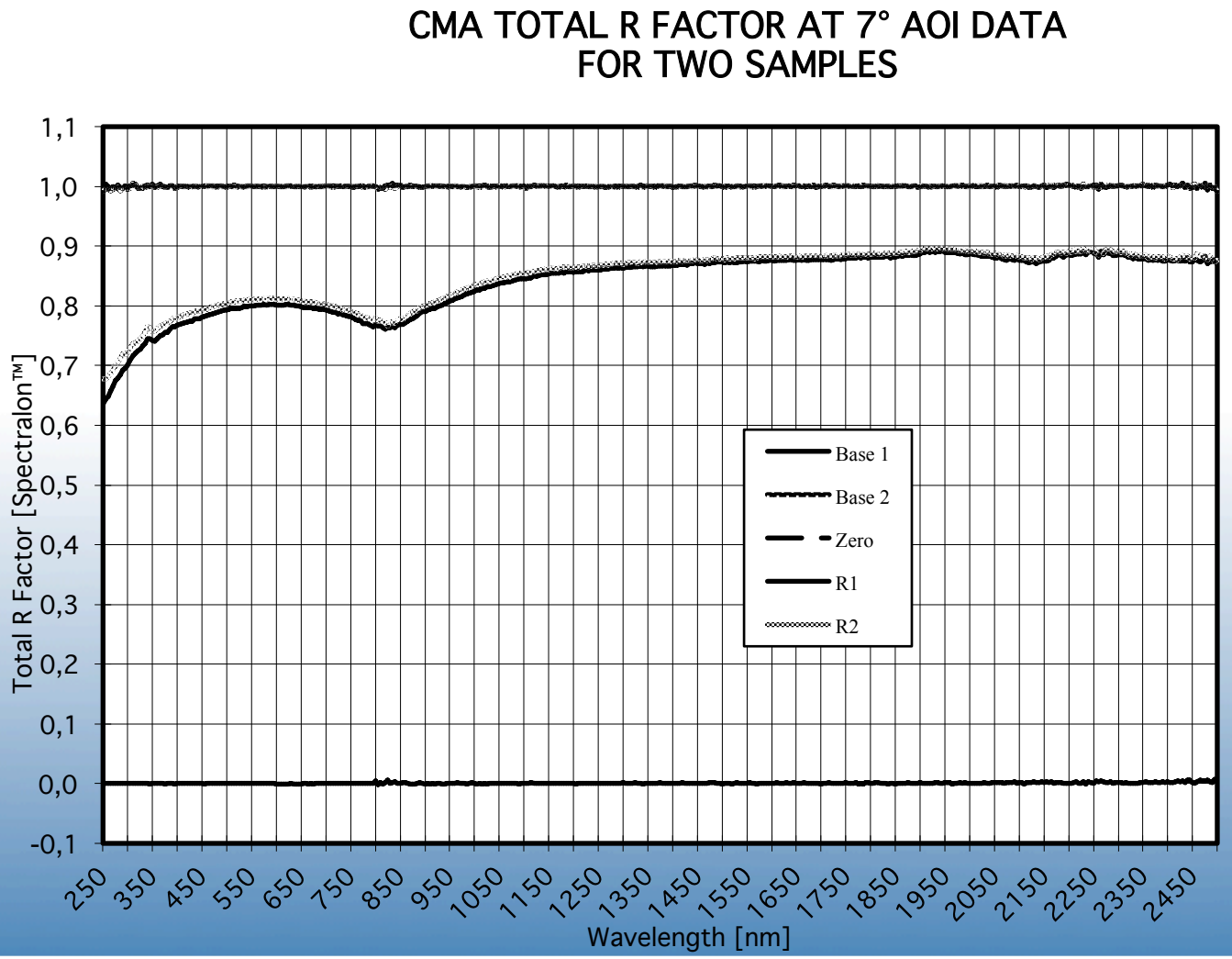


Synthetic interferogram of the full aperture of the CFRP mirror. Only tip, tilt and focus removed.

Reflectivity Data

Composite Mirror Applications Inc.

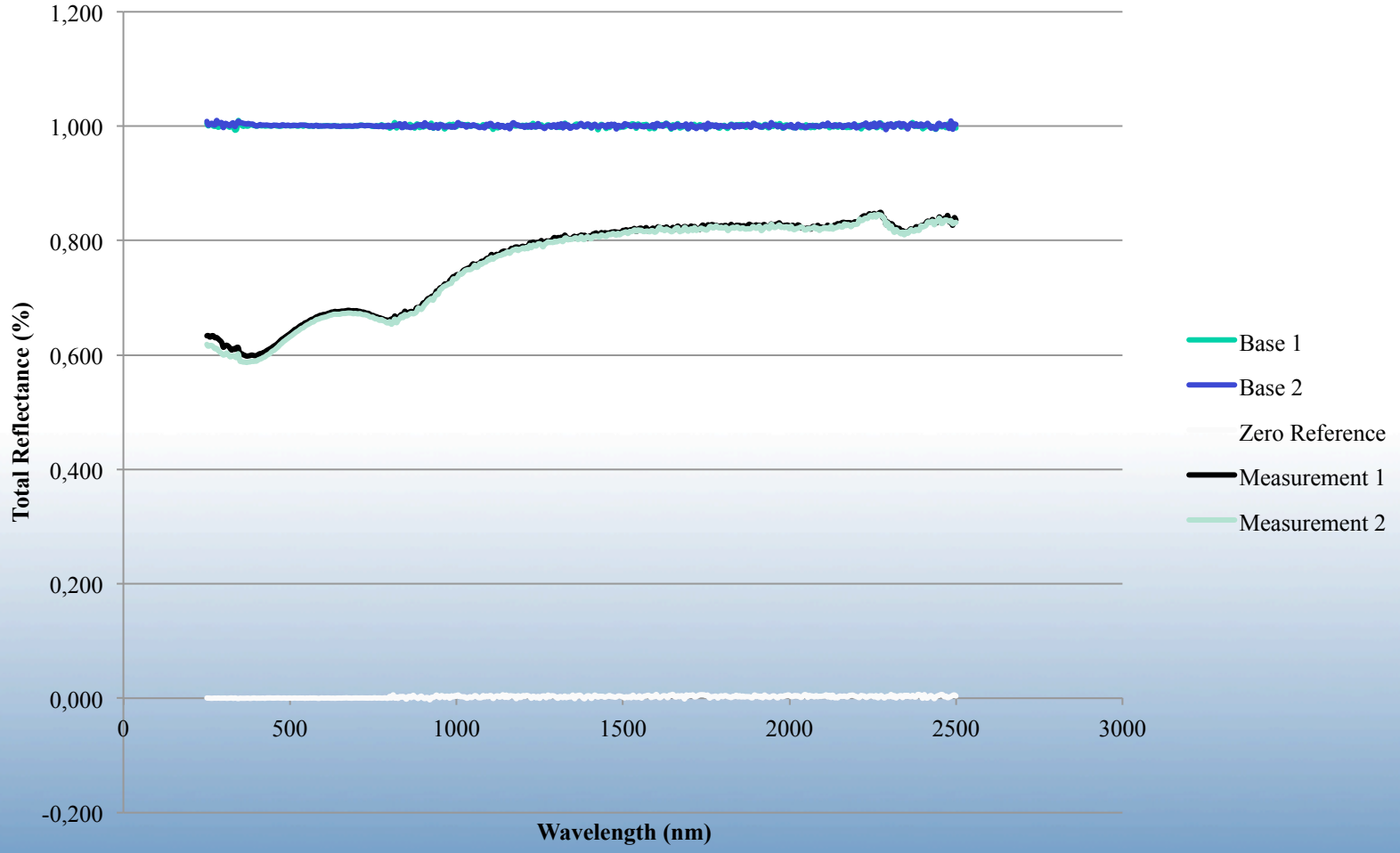
The first measurement indicates just above 80% reflectivity at 450nm



Reflectivity Data

Composite Mirror Applications Inc.

The second measurement indicates just above 60% reflectivity at 450nm



Reflectivity Data

Composite Mirror Applications Inc.

The reflectivity measurements indicate that we have a problem with our system to deliver the coating necessary.

The LHCb RICH 1 mirrors were coated by SESO in France.

We need to discuss the coating with INFN (M. Contalbrigo) before we can proceed.