



Date: 11 Feb 2008
Refer to: L080010-00
Subject: Charge for AdL COC PDR & Glass FRR Committee
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To: Reitze, Norna Robertson, Ken Strain, Bill Tyler, Hiro
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cc: GariLynn Billingsley, Bill Kells, David Shoemaker,
Carol Wilkinson
From: Dennis Coyne (chair)

A Preliminary Design Review (PDR) for the advanced LIGO Core Optics Components (COC) subsystem is underway. As review committee members you should be aware of the following planned dates:

- committee telecon to collect and discuss questions, Thu 2/14, 9-10 am PT (1-800-704-9896, 507045#)
- committee questions provided to the COC team by 2/15
- committee and COC team telecon on Thu 2/21, from 8-10 am PT (1-800-704-9896, 507045#) [*A separate announcement will be sent to the LSC-wide community with instructions for joining the teleconference.*]
- committee report issued by 2/28

In addition to the PDR, readiness for procuring the glass blanks for the COC elements will also be reviewed at the same time.

The documentation under review is the following:

- [T080026-00 Core Optics Components Design Requirements Document](#)
- [E080033-00 Core Optics Components Preliminary Design](#)
- Final Design Specifications and drawings for material (glass) procurement (found on the [Adv. LIGO wiki page for this review](#)):

Optic	Specification	Drawing
ITM	E080031-A	D080039-A
BS	E080035-A	D080050-A
CP	E080037-A	D080051-A
RM1	E080028-A	D080038-A
RM2	E080039-A	D080052-A
RM3	E080041-A	D080053-A
FM	E080045-A	D080054-A
ETM	E080047-A	D080055-A

Supporting documentation includes:

- [C070214-00 ETM material Recommendation](#)
- [C070187-00 Heraeus measurement of 3001 material homogeneity](#)

- [T040009-00](#) Report of the Core Optics Components Design Requirements Review Committee
- [L040025-00](#) Action Items from the COC Design Requirements Review

If anyone has trouble accessing these documents, please let me know. (*Note that (a) the wiki requires a password and (b) C070214-00 and C070187-00 are on the internal (non-public) side of the LIGO Lab document control center.*)

The following review committee charge has been developed with the Guidelines for AdL Construction Activities ([M050220-05](#)) in mind, but tailored to this review:

- 1) With regard to requirements:
 - a) determine whether the requirements identified in the Design Requirements Document (DRD) are complete (including functional, performance and interface requirements); if needed, recommend additional requirements to be specified;
 - b) advise whether proposed requirement values are appropriate;
 - c) advise on whether any significant proposed changes to the requirements, since the Design Requirements Review, are well motivated and appropriate.
- 2) With regard to the preliminary design:
 - a) evaluate the Preliminary Design Document (PDD) to determine if it is consistent with the DRD, on the basis of any supporting analysis/modeling/simulation or test data,
 - b) advise whether the design is sufficiently developed to proceed with the Final Design phase, in particular is the following information provided:
 - a. resolution of DRR/CDR action items,
 - b. preliminary drawings and specifications,
 - c. personnel and equipment safety approach to handling, processing, transport and storage,
 - d. quality assurance and testing approach to assure conformance with key performance requirements/specifications
 - c) advise whether the criteria and plan for test mass material selection is appropriate and complete.
- 3) With regard to the Fabrication Readiness Review (FRR) for the glass blanks:
 - a) Is there high confidence that the selected materials and overall dimensions for the COCs are correct and will not need to change as the design is finalized?
 - b) Are the specifications and drawings complete, correct and ready for release into configuration control?
 - c) Are the number of optics to be procured sensible given the intended number of delivered optics and expected need for in-process spares?

Note that the following factors are not part of this review:

- 1) cost schedule, long lead procurement, and procurement strategies, as they have been handled in separate management reviews with the COC team leaders;
- 2) charge mitigation, except as it might influence interfaces, since this is an element of the Auxiliary Optics Subsystem (AOS);
- 3) proposed (but not baselined) gold coatings on the barrel of the test masses and compensation plates