LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

RECORD OF DECISION/AGREEMENT (RODA)

Document	LIGO-M 060305-01 -Y
Date:	14 November 2006
Title:	RODA: Compensation Plate dimensions
To the Attention of:	aligo_sus, aligo_aos
cc:	aligo_sys
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System(s) affected:	☐ Initial LIGO ☑ Advanced LIGO ☐ Other:
Nature/ Scope:	☑ Design Decision ☐ Requirements Decision ☐ Work Scope Decision ☐ Working Agreement between Groups ☐ Other
Subsystem(s) affected	☑ Relevant Subsystem(s)/Component(s): SUS, AOS (TCS), COC
Primary Contacts	Group or Affiliation and Contact: Phil Willems, AOS/TCS
Reference Documents:	L060066-00, *Report on the AdLIGO TCS Design Requirements & Conceptual Design Review* T060214-10, *Test Mass Thermal Compensation Strategies* *T06pending, P. Willems, "Heating of the ITM by the Compensation Plate in Advanced LIGO", 9/29/2006.*

DECISION/AGREEMENT STATEMENT:

During the Design Requirements and Conceptual Design Review of the Thermal Compensation System (TCS), ring heaters for the Compensation Plates (CP) were eliminated from the TCS design. In addition, study of the effects of radiative coupling of the CP to the Input Test Mass (ITM) indicate that the CP should be placed in close proximity to the ITM to reduce radial heat loss and gradients. This allows the CP diameter and thickness to be chosen for ease of integration into the quad suspension design. Specifically, the new CP dimensions are:

- Diameter: 340 mm
- Thickness: 130 mm
- Wedge: TBD (few milliradians)

The CP material will be fused silica (of the same grade/quality as that used for the ITM). These overall dimensions are identical to the End Test Mass (ETM) reaction mass, as so affords some commonality of design and parts between the ETM and ITM suspensions.

N.B.:1. This RODA does not give any information on presence or size of flats. This information is neec