

# Advanced LIGO Engineering Change Request (ECR)

**ECR Title: ECR:**

**DCC No: E1300404-v1**

**Add In-Air DC PD for red transmission**

**Date: 5/8/2013**

**Requester:**

**Impacted Subsystem(s):**

Daniel Sigg

ISC

**Description of Proposed Change(s):**

Proposed changes:

Add a DC photodetector (PDA100A) to measure the in-air transmitted beam in EX and EY.

**Reason for Change(s):**

This will allow for additional diagnostics in the EtherCAT system. It will be useful to determine if the red and green resonance coincide. It can be used to measure the relative stability of the red locking point (off resonance DC measurement) with minimum alignment coupling. It will support the search opto-mechanical instabilities. It will allow the identification of parametric oscillations (using high BW readout).

**Estimated Cost:**

Electronics hardware: none; use extra PD freed by E1200938.

Optical components: none; use spares.

**Schedule Impact Estimate:**

None.

**Nature of Change (check all that apply):**

- Safety
- Correct Hardware
- Correct Documentation

- Improve Hardware
- Improve/clarify Documentation
- Change Interface
- Change Requirement

**Importance:**

- Desirable for ease of use, maintenance, safety
- Desirable for improved performance, reliability
- Essential for performance, reliability
- Essential for function
- Essential for safety

**Urgency:**

- no urgency
- desirable by date/event: June 2013
- Essential by date/event: HIFO\_Y
- Immediately (ASAP)

**Impacted Hardware (select all that apply):**

- Repair/modify. List part & SNs: \_\_\_\_\_
- Scrap & Replace. List part & SNs: \_\_\_\_\_
- Installed units? List IFO, part & SNs: \_\_\_\_\_
- Future units to be built

**Impacted Documentation** (list all dwgs, design reports, test reports, specifications, etc.):

D1100670, E1300151, D1002803,  
T1100472, D1100607, D1201448,  
D1100683, E1300109

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**Disposition (to be completed by Systems Engineering):**

- TRB**
- CCB**
- Approved**

**Additional information required. Define:**

*[Requester re-submits with new information with the same DCC E-number for the ECR but the next version number.]*

**Concurrence by Project Management: (Acknowledged Electronically in DCC)**

**Project Systems Engineer:** Dennis Coyne

**Project Systems Scientist:** Peter Fritschel