Advanced LIGO Engineering Change Request (ECR)

ECR Title: Increase Transimpedance Gain for CLF Photodetector

DCC No: E1800064-v2

Date: 3/16/2018

Requester: Daniel Sigg

Impacted Subsystem(s): SQZ

Description of Proposed Change(s): We propose to increase the DC transimpedance by a factor of 100, whereas the RF trasnimpedance is increased by a factor of 10.

Changes (D1101124):

1. R1 -> 10K
2. R22 -> 20
3. R26 -> 2K

Check for oscillations!

Reason for Change(s): There is less than a mW of light hitting the CLF diode. For both DC and RF the transimpedance needs to be increased.

Estimated Cost: <100$ for parts

Schedule Impact Estimate: small

Nature of Change (check all that apply):

- ☐ Hardware Safety
- ☒ Correct Hardware
- ☐ Correct Documentation
- ☐ Improve Hardware/Software
- ☐ 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 hardware safety

Urgency:

- ☐ No urgency
- ☐ Desirable by date/event:
- ☐ Essential by date/event:
- ☒ 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.):

D1101124

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Disposition of the proposed change(s):

The disposition of this proposed engineering change request is to be completed by Systems Engineering and indicated in the "Notes and Changes" metadata field in the DCC entry for this ECR. The typical dispositions are as follows:

- **Additional Information Required**: in which case the additional information requested is defined. The ECR requester then re-submits the ECR with the new information using the same DCC number for the ECR but with the next version number.
- **Rejected**: in which case the reason(s) for the rejection are to be given
- **Approved**
- **Approved with Caveat(s)**: in which case the caveat(s) are listed
- **TRB**: the ECR is referred to an ad-hoc Technical Review Board for further evaluation and recommendation. It is the System Engineer's (or designee's) responsibility to organize the TRB. The System Engineer (or designee) then makes a technical decision based on the TRB's recommendation. Links to the TRB's documentation (charge, memos, final report, etc.) are to be added to the "Related Documents" field for this ECR.
- **CCB**: a change request for approval of additional funds or schedule impact is to be submitted to the Configuration Control Board. Links to the CCB's documentation (CR, etc.) are to be added to the "Related Documents" field for this ECR.

Concurrence by Project Management:

Acknowledgement/acceptance/approval of the disposition is to be indicated by the electronic "signature" feature in the DCC entry for this ECR, by one the following personnel:

- Systems Scientist
- Systems Engineer
- Deputy Systems Engineer