

Advanced LIGO Engineering Change Request (ECR)

ECR Title: Add whitening to PSL HV Mon channels **DCC No:** E1600318-v1

Date: 10/24/2016

Requester: Daniel Sigg **Impacted Subsystem(s):** PSL **DBB**

Description of Proposed Change(s): The field box supports a single zero/pole whitening that is currently not stuffed. We propose to add an 1Hz/100Hz zero-pole filter to the PMC/ILS boards. The ILS board could do with less, such as a 10Hz/100Hz zero-pole filter. Other PSL sensors might also profit from some whitening.

Reason for Change(s): Both the PMC and the ILS locking servos have DAQ readbacks at 16kHz of the HV signal sent to the PZT. For the PMC it is all ADC noise above 100Hz, whereas for the ILS some frequency bands above 1kHz seem to be close.

Estimated Cost: No significant hardware changes.

Schedule Impact Estimate: during maintenance breaks

Nature of Change (check all that apply):

- Hardware 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 hardware safety

Urgency:

- No urgency
- Desirable by date/event: _____
- Essential by date/event: _____
- Immediately (ASAP at H1, L1 as convenient)

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.):

Fieldbox drawing

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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