

Advanced LIGO Engineering Change Request (ECR)

ECR Title: Changes to science frame channels for H1 and L1

DCC No: E1500349-v1

Date: 14 August 2015

Requester: Peter Fritschel Impacted Subsystem(s): PSL, OAF, DAQ, LSC, ALS

Description of Proposed Change(s):

Combination of elimination of channels from the science frames, and reductions in channel rates, for various subsystems, as detailed here:

PSL:

Remove the following (16k) channels from H1 (these channels are already not included in the L1 science frames; their EPICs values are sufficient to track power levels):

H1:PSL-OSC_PD_AMP_DC_OUT_DQ

H1:PSL-OSC_PD_BP_DC_OUT_DQ

H1:PSL-OSC_PD_INT_DC_OUT_DQ

H1:PSL-OSC_PD_ISO_DC_OUT_DQ

On L1, reduce the frame rate for L1:PSL-ODC_CHANNEL_OUT_DQ from 32768 to 16384 (same as H1)

OAF:

Remove the following (16k) channels from L1 (already not included in the H1 frames):

L1:OAF-CAL_XARM_DQ

L1:OAF-CAL_YARM_DQ

L1:OAF-CAL_DARM_DQ

L1:OAF-CAL_CARM_X_DQ

On L1, reduce the frame rate for the following channels from 16384 to 2048:

L1:OAF-CAL_MICH_DQ

L1:OAF-CAL_PRCL_DQ

L1:OAF-CAL_SRCL_DQ

On H1, remove H1:OAF-CAL_IMC_F_DQ (16k)

For both H1 and L1, reduce the rate of IFO:OAF-CAL_IMC_X_DQ from 16384 to 2048

LSC:

On L1, remove these (2k) channels from the science frames (they don't exist for H1, don't know what they are):

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L1:LSC-X_EXTRA_AI_1_OUT_DQ
L1:LSC-X_EXTRA_AI_2_OUT_DQ
L1:LSC-X_EXTRA_AI_3_OUT_DQ
L1:LSC-Y_EXTRA_AI_1_OUT_DQ
L1:LSC-Y_EXTRA_AI_2_OUT_DQ
L1:LSC-Y_EXTRA_AI_3_OUT_DQ

ALS:

Remove the following (2k) channels from both H1 and L1 (detectors not functional in science mode):

IFO:ALS-C_TRX_A_LF_OUT_DQ
IFO:ALS-C_TRY_A_LF_OUT_DQ

Reason for Change(s):

These changes either: bring H1 and L1 into better alignment as far as what channels are stored in the science frames; or, eliminate unnecessary channels from the frames; or, reduce frame channel rates to more relevant bandwidths.

Estimated Cost: None (just the time required to modify and reload the model).

Schedule Impact Estimate: Will likely be implemented at LHO on Tuesday, Aug 18, 2015.

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: _____
- 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.):

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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