Advanced LIGO Engineering Change Request (ECR)

ECR Title: ECR: Acquisition of green arm transmitted signals in ASC front-end

DCC No: E1400047

Date: 01/30/2014

Requester: Stefan Ballmer Daniel Sigg	**Impacted Subsystem(s): ALS ASC**

Description of Proposed Change(s):

Add DB9 cable from ALS PDC concentrator 3 (D1201345, LHO S/N 1300240), outputs 1-4 (in rack ISC-R4, slot U20 back) to ASC ADC card 3, channel 25-28 (Rack ISC-C1, slot 33 front, port 7) [D0902783, LHO S/N S1102794]. This cable provides the following signals to be digitized by the ASC (see D1100683):

PD_ALS_LASER_IR, PD_ALS_LASER_GR, PD_ALS_TRANS_X, PD_ALS_TRANS_Y

Reason for Change(s):

The arm initial alignment (dither alignment) code needs the green arm transmitted signals to be available in the ASC front-end. Those signals are currently only available in the Beckhoff corner system. A DB9 cable and 4 ADC channels are required to make the signals available.

Note: CH 17-24 on ASC ADC card 3 have been taken up by WFS DC signals, but are not in document T1100472 yet.

Estimated Cost: the cost of the cable, 4 ADC slots

Schedule Impact Estimate:

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: _DB9_cable_
- ☐ Future units to be built

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

T1100472

E1200408

D1100683

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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