

Advanced LIGO Engineering Change Request (ECR)

ECR Title: Adding RF Frequency Readbacks

DCC No: E1400079-v1

Date: 2/24/2014

Requester: Daniel Sigg

Impacted Subsystem(s): ISC

Description of Proposed Change(s): Add coax cables from three RF distribution amplifiers to the timing comparator/frequency counter. The three cables are between:

(1) Dist. amp for the main modulation, ISC-C4, slot 26, output 8 to CFC, ISC-C3, slot 12, input 16.

(2) Dist. amp for the EX PDH modulation, ISC-XC1, slot 32, out 8 to CFC, TCS-XC1, slot 40, input 16.

(3) Same for EY.

These are relatively short runs (rack to neighboring rack). The cables are TNC/BNC.

Use a 20dB N attenuator at the RF distribution amplifier output.

Reason for Change(s): During commissioning we are using an ifr RF frequency synthesizer to drive our main modulation frequency in the corner. Right now, we also use an ifr synthesizer in the end stations to explore the modulation frequency space. In contrast to our RF sources, we currently have no frequency readbacks for the ifr synthesizers.

Estimated Cost: negligible (attenuators & coax cables from aligo ISC supply)

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: now
- 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.):

D1201448, D1100607, D1001423, E1300151,
D1101126, D1201495,
T1100472, D1100434, E1100591, E1300079,
D1100683, E1200376

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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