

Advanced LIGO Engineering Change Request (ECR)

ECR Title: Implement an additional patch panel to accommodate the in-vacuum WFS

DCC No: E1300757-v1

Date: 10/8/2013

Requester: Rich Abbott

Impacted Subsystem(s): ISC

Description of Proposed Change(s): Add an additional ASC RF patch panel, [D1100905](#), for each in-vacuum WFS head. In the current design there is one patch panel terminating both frequencies of a WFS head. This patch panel is located between the corresponding two 4-channel demodulators. The new patch panel will be located below the lower demodulator. Each WFS patch panel will now serve the demodulator located in the slot above. The top row of the patch panel is dedicated for in-air WFS, whereas the bottom for the in-vacuum ones. Since there is only one test input per WFS head, it would be located in the upper patch panel.

We also need to re-label the in-air cables of the in-vacuum WFS, since they are split by segments rather than frequency.

Reason for Change(s): The in-air and in-vacuum WFS share the demodulators, and in the current design also the RF patch panel. The proposed change would add separate patch panels to accommodate the in-vacuum WFS. Having the in-vacuum cables floating around and being forced to re-terminate them at the rear of the patch panel, whenever we change between in-air and in-vacuum WFS, isn't reliable nor practical.

Estimated Cost: \$3k for new patch panels.

Schedule Impact Estimate: none. The change needs to be implemented as soon as feasible.

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: end of year
- 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.):

D1001425, D1001426, D1200666, E1200408

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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