

LIGO HANFORD OBSERVATORY

PO BOX 159

RICHLAND WA 99352

TEL: 509.372.8106

FAX: 509.372.8137

# MEMORANDUM

DATE: August 27, 2013

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| TO: | Advanced LIGO |
| FROM: | Daniel Sigg |
| SUBJECT: | Electronics and Optics Change Request from the HIFO-Y Test |
| Refer to: | LIGO-[E1300656](https://dcc.ligo.org/LIGO-E1300656) |

The HIFO-Y test concluded with a set of recommendations. They include adding a second frequency difference divider and adding a PLL circuit to lock the VCOs to the green beat note. They include adding an additional oscillator source to drive the fiber AOM. And, they include a change in the optics path on HAM1 and ISCT1 to direct both the green beams and the laser beam through the same periscope. This is covered by the following ECRs:

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| --- | --- | --- |
| **ECR** | **Description** | **Estimate** |
| [E1300657-v1](https://dcc.ligo.org/LIGO-E1300657-v1) | Adding a second frequency difference divider for the common and differential VCOs | 6,500 |
| [E1300658-v1](https://dcc.ligo.org/LIGO-E1300658-v1) | Adding PLLs to lock the common and differential VCOs | 8,000 |
| [E1300659-v1](https://dcc.ligo.org/LIGO-E1300659-v1) | Implement an additional oscillator source to drive the fiber | 6,000 |
| [E1300676-v1](https://dcc.ligo.org/LIGO-E1300676-v1) | Periscope changes for acoustic mitigation of ALS frequency noise | 1,000 |
|  | Total | 21,500 |

We ask for $22k from the Advanced LIGO project.