|  |  |
| --- | --- |
| **ECR Title: ECR:****Frequency Counter for PLL error signal** | DCC No: E1200936-v1 |
| Date: 9/17/2012 |
| **Requester:** Daniel Sigg | **Impacted Subsystem(s):** ISC |  |
| **Description of Proposed Change(s):** Add frequency counter capability to the PLL error signal. Since the timing system already has a frequency counter, this request only covers an additional preamplifier in the PLL error signal. The design of the preamplifier can be found [here](https://awiki.ligo-wa.caltech.edu/aLIGO/RfPreAmplifier). |
| **Reason for Change(s):** When the ALS laser frequency is far away from the fiber reference, we typically use a local spectrum analyzer to roughly adjust the NPRO temperature before trying to engage the PLL. To automate this process for day-by-day operations, we like to replace the local spectrum analyzer with a remote-readout frequency counter. |
| **Estimated Cost:** 8 units at a cost of $1.5k each, total $12k |
| **Schedule Impact Estimate:** None. |
| **Nature of Change (check all that apply):****[ ]** **Safety****[ ]  Correct Hardware****[ ]  Correct Documentation** | **[x]  Improve Hardware****[ ]  Improve/clarify Documentation****[ ]  Change Interface****[ ]  Change Requirement** |
| **Importance:****[ ]  Desirable for ease of use, maintenance, safety****[ ]  Desirable for improved performance, reliability****[x]  Essential for performance, reliability****[ ]  Essential for function****[ ]  Essential for safety** | **Urgency:****[ ]  no urgency****[ ]  desirable by date/event: \_Feb 2013\_\_\_\_****[ ]  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.):D1002803, D1001423, D1100670, E1200146 |
| **Disposition (to be completed by Systems Engineering):****[ ]  TRB****[ ]  CCB****[x]  Approved****[ ]  Additional information required. Define:***[Requester re-submits with new information with the same DCC E-number for the ECR but the next version number.]***Concurrence by Project Management: (Acknowledged Electronically in DCC)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Systems Engineer**: Dennis Coyne |  | **Project Systems Scientist**: Peter Fritschel |  |

 |