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| **ECR Title: ECR:** Replacement of IO\_MB\_M2 2.1% beam splitter with 10% beam splitter | | | | DCC No: E12xxxxx-vx |
| Date: |
| **Requester:** Alberto Stochino, Daniel Sigg, Keita Kawabe | | **Impacted Subsystem(s):** PSL, ISC | |  |
| **Description of Proposed Change(s):** We propose to replace the optic currently in place of IO\_MB\_M2 on the PSL table, which is a beam splitter to pick-off the ALS beam directed to ISCT1. With this change the current beam splitter, with a transmissivity of 2.1%, would be replaced with a different beam splitter with a 10% transmissivity. The PSL operating procedure will also be changed by requiring that the ALS pick-off is blocked when the PSL mode is switched to high power, that is greater than 20 W. | | | | |
| **Reason for Change(s):** The pick-off beam of the PSL directed to ISCT1 for frequency doubling needs to maintain a constant power of about 1.5 W. With the PSL running in low power mode (~15 W) and the current transmissivity of IO\_MB\_M2 (2.1%), the pick-off beam would not have adequate power.  To avoid delivering more than 2 W on ISCT1 when the PSL runs on high power (~170 W), we require that in those circumstances the ALS pick-off is completely blocked on the PSL table. This will prevent damage of the frequency doubling crystal and potentially excessive power to impinge on the ALS viewport on HAM1. | | | | |
| **Estimated Cost:** Zero. The new 10% beam splitter is already available in stock as a spare. | | | | |
| **Schedule Impact Estimate:** No affect on schedule if the change is completed before IMC lock acquisition begins. Possible interference with IMC alignment if completed after. | | | | |
| **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:** 11/16/2012  **Essential by date/event: \_\_\_\_\_\_\_\_\_\_\_\_**  **Immediately (ASAP)** | | |
| **Impacted Hardware (select all that apply):**  **Repair/modify. List part & SNs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **✓Scrap & Replace. List part & SNs:** IO\_MB\_M2  **Installed units? List IFO, part & SNs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Future units to be built** | | **Impacted Documentation** (list all dwgs, design reports, test reports, specifications, etc.):  LIGO-D0902114-v12 | | |
| **Disposition (to be completed by Systems Engineering):**  **TRB**  **CCB**  **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 |  | | | | | |