|  |  |
| --- | --- |
| **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 |  |

 |