**LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY**

**-LIGO-**

**CALIFORNIA INSTITUTE OF TECHNOLOGY**

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| **TCS Hartmann End Breakout Box Test Procedure** |
| B. Abbott |

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Performed by:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_

Board Serial Number:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Overview**

The Thermal Compensation System (TCS) Hartmann End Breakout Box is a switch box for power to a Hartmann camera and an RCX C-Link. This document will describe how to test each box, to ensure proper functionality.

**2. Test Equipment**

**2.1** Power Supply capable of +/-18V, and +5V

**2.2** Digital Multimeter (DMM)

**2.3** Hartmann Power Supply Box (D1102206)

**3. Preliminaries**

**3.1** Perform visual inspection on board to check for missing components or solder deficiencies

**3.2** Before connecting the power to the chassis, set power supply to +/-18V and +5 Volts, then turn off. Connect the power supply to the Hartmann Power Supply chassis, and connect the power supply box to the chassis under test at the back panel 5-pin power connector labeled “From DC Distribution Box. The “Board Power” LEDs should turn on. Record that they did:
+12V LED Turn on? (Y/N)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

+5V LED Turn on? (Y/N)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Camera and Link digital power switch test:** Apply 5V at the input pins below. Observe the change of voltage at the output, making sure that the observed value matches the expected value. Also observe whether the corresponding LED turns on.

|  |  |  |  |
| --- | --- | --- | --- |
| **INPUT**From Beckhoff EtherCAT | **OUTPUT** | **Expected****Value** | **Function****Correctly?** |
| TTL1(+5)(J6-14 / J6-15)(-) |  Hartmann Camera 12V SupplyPin 1(+14V) and Pin 6 (GND) | +14V |  |
| TTL2(+5)(J6-7 / J6-15)(-) | RCX C-Link 5V supplyPin 4(+5V) and Pin 9(GND) | +7V |  |