**LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY**

**-LIGO-**

**CALIFORNIA INSTITUTE OF TECHNOLOGY**

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| **TCS Laser Chiller Chassis Test Procedure** | | |
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Performed by:\_\_\_\_\_\_\_\_\_\_\_\_\_

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

Chassis Serial Number:\_\_\_\_\_\_\_\_\_\_\_\_

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

1. **Overview**

The Thermal Compensation System (TCS) Laser Chiller Summing Chassis (D1500268-v1) houses a TCS Laser Chiller Summing Board (D1500265-V1), and a Chassis Power Supply Board (D1000217). It’s function is to supply a DC level and sum it in with the DAC command, to allow the DAC level to be near zero under normal operating conditions, and maintain its level when the DAC freezes up.

1. **Test Equipment**
   1. +/- 18V Power supply
   2. Two 9-pin Dsub Breakout boards
   3. Digital Multimeter (DMM)
   4. Voltage calibrator
   5. Oscilloscope
2. **Preliminaries**
   1. Perform visual inspection of the Chassis to make sure nothing looks overtly broken.
   2. Connect the +/-18V ppower supplies to the back power connector, and turn on the chassis. The back panel +/-18V LEDs and the front panel +/-15 LEDs should all light up.

Are all 4 LEDs lit? Yes/No \_\_\_\_\_\_\_\_\_\_

1. **Electrical Tests**
   1. Attach a 9-pin Dsub breakout board to the connector labled “From X-Arm DAC”, and connect the Voltage Calibrator to pins 1(+) and 6(-). Turn it on, but keep it set to 0V.
   2. Attach another 9-pin Dsub breakout board to the connector labled “To ChillerX”, and connect the Digital Multimeter, and an oscilloscope to pins 1(+) and 6(-).
   3. Open the box cover, and adjust R9 in “Sum Node 1” until the DMM reads 4.15V. Change the calibrator to 1V, and make sure that the DMM reads 5.15V, +/- 0.1V.

Enter Voltage Output:\_\_\_\_\_\_\_\_\_\_\_V

* 1. At both voltage settings, check the scope, and make sure that there are no noticeable oscillations.

Clear of Oscillations? (Yes/No)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Next, attach the 9-pin Dsub breakout board to the connector labeled “From Y-Arm DAC”, and connect the Voltage Calibrator to pins 1(+) and 6(-). Turn it on, but keep it set to 0V.
  2. Attach another 9-pin Dsub breakout board to the connector labled “To ChillerY”, and connect the Digital Multimeter and an oscilloscope to pins 1(+) and 6(-).
  3. Open the box cover, and adjust R9 in “Sum Node 2” until the DMM reads 4.15V. Change the calibrator to 1V, and make sure that the DMM reads 5.15V, +/- 0.1V.

Enter Voltage Output:\_\_\_\_\_\_\_\_\_\_\_V

* 1. At both voltage settings, check the scope, and make sure that there are no noticeable oscillations.

Clear of Oscillations? (Yes/No)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_