LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

-LIGO-

CALIFORNIA INSTITUTE OF TECHNOLOGY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

|  |  |  |
| --- | --- | --- |
| Document Type | DCC Number  T1000399 | November 9, 2010 |
| **L4C Preamp Test Procedure** | | |
| B. Abbott, S. Abbott | | |

Distribution of this draft:

This is an internal working note of the LIGO Laboratory

**California Institute of Technology Massachusetts Institute of Technology**

**LIGO Project – MS 18-33 LIGO Project – MS 20B-145**

**Pasadena, CA 91125 Cambridge, MA 01239**

Phone (626) 395-2129 Phone (617) 253-4824

Fax (626) 304-9834 Fax (617) 253-7014

E-mail: info@ligo.caltech.edu E-mail: info@ligo.mit.edu

<http://www.ligo.caltech.edu/>

1. **Introduction**

The tests described below are required to verify the correct operation of the L4C Preamp.

1. **Test Equipment**

Network Analyzer

Digital Mulitmeter

Micro Dsub breakout board

5.5k ohm resistor

Power Supply

1. **Tests**
   1. **Frequency Response**

Do a swept sine measurement from 10Hz to 10KHz.Go in through a 5.5kOhm resistor on Pin A(+) and Pin B(-) of P1. Read on pins 5 and 9 of the micro Dsub connector. There should be a pole at 1072Hz and a gain of 46.

|  |  |
| --- | --- |
| **Pole at 1.07KHz?** | **Gain of 46?** |
| yes | yes |

* 1. **Pressure**

Using a digital multi meter, check the pressure readout on pin 4 of the micro d sub connector. The pressure should be around 3.6V.

|  |
| --- |
| **Voltage at pin 4 around 3.6V?** |
| yes |

* 1. **Noise Measurement**

Short the input (pin A and B of P1) to ground. Using a network analyzer, measure the noise on the output (Pins 5 and 9) of the L4C Preamp.

|  |  |
| --- | --- |
| **Expected Noise** | **Actual Noise** |
| <600nV @ 10Hz | 512nV |