**LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY**

**-LIGO-**

**CALIFORNIA INSTITUTE OF TECHNOLOGY**

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| **TMDS Electrometer Pod Test Procedure** | | |
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Performed by:\_\_\_\_\_\_\_\_\_\_\_\_

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

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

1. **Overview**

TMDS Electrometer pod houses an electrometer circuit that reads the free ions in the TMDS Ionizer (D1400331)

1. **Test Equipment**
   1. TMDS Ionizer
   2. TMDS Interface Chassis (D1500152)
   3. OR +/- 10V signal generator, 4KV Step up transformer, and 0-110 Variable Transformer
   4. 2 Oscilloscopes
   5. Baratron Readout Box
   6. Digital Multimeter
   7. Clean Air supply with regulator and flowmeter.
2. **Preliminaries**
   1. Perform visual inspection of the pod to make sure nothing looks overtly broken.
   2. Power the box, either by a power supply set to +/- 15 Volts, or by hooking it up to the TMDS Interface.
   3. Read the current on the front panel lcd, or by hooking up a multimeter to TP8, to GND.
   4. Watch the current monitor on an oscilloscope to make sure it doesn’t go into wild discharge mode.
3. **Functional Test:** Set the system up to match the parameters below, and look at the electrometer output square wave on an oscilloscope. Any untrue results fails the pod.
   1. **Set the Signal Generator for +/- 10V (into HiZ) square wave with a frequency of 200mHz**
   2. **Turn on the vacuum pump, and adjust the air pressure until you read a flow of 50 on the flowmeter glass (39 l/min).**
   3. **Adjust the high voltage until you read 0.407Volts on TP8.**
   4. **Results:**

**At this flow rate the pressure read by the Baratron should be somewhere between 55 and 70 Torr.**

**Baratron Reading:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Torr**

**If the above parameters are true, the electrometer should be reading between +5.0 to +5.5 Volts positive, and -5.2 to -5.7V negative.**

**Electrometer Reading:**

**Positive:\_+\_\_\_\_\_\_V**

**Negative: -\_\_\_\_\_\_\_\_V**