|  |  |
| --- | --- |
| Author: | Sheila Dwyer, Daniel Sigg |
| Refer to: | LIGO-E1300934-v1 |
| Date: | Jan 3, 2014 |

Test procedure for dual photodiode amplifier box (D1301017):

**Test Preparation**

Enter Name, Date, Revision, Board Serial Number VCO chassis serial number:

|  |  |  |
| --- | --- | --- |
| **Test Engineer** | **Date** | **Pass** |
|  |  |  |
| **Chassis** | **Serial Number** |  |
| **D1301017** |  |  |

**Required Test and Ancillary Equipment**

* +/- 15V power supplies
* 2 BNC to grabbers
* 1 TNC to BNC adapter
* 200kOhm resistor
* 20MOhm resistor
* Voltmeter
* BNC to banana adapter
* 9 pin dsub breakout board
* Access to medm screens (CDS laptop or workstation)

**Power Supplies**

Connect chassis to power and etherCAT cable.

Check that both OK led lights are lit on the front panel.

Check the power supply current:

|  |  |  |
| --- | --- | --- |
| Supply voltage | -15V | +15V |
| nominal | <100mA | 0.25 A |
| measured |  |  |

**Offsets**

With the gain set to 60dB, check the offset on each channel, the absolute value should be less than 10 mV. Check the offset readback in the MEDM screen, use a breakout board on the 9 pin D-sub connector (DAQ readback) with BNC grabbers over the indicated pins, and attach a voltmeter to the BNC output for each PD.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Measured in epics (MEDM) | DAQ readback | BNC output | nominal |
| PD1 (pins 1+6) |  |  |  | <10mV |
| PD2 (pins2+7) |  |  |  | <10mV |
| PD3 (pins 3+8) |  |  |  | <10mV |
| PD4 (pins4+9) |  |  |  | <10mV |

**Gain Settings**

Connect a 200 kOhm resistor to the PD inputs using a TNC to BNC adapter and BNC to grabbers. Measure the voltage for the 0dB and 20dB gain settings at each of the three readbacks.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Gain setting | MEDM | DAQ output | Measured with voltmeter on BNC output | nominal |
| PD1  (pin 1+6) | 0dB |  |  |  | 0.5V |
| 20dB |  |  |  | 5V |
| PD2  (pin 2+7) | 0dB |  |  |  | 0.5V |
| 20dB |  |  |  | 5V |
| PD3  (pin 3+8) | 0dB |  |  |  | 0.5V |
| 20dB |  |  |  | 5V |
| PD4  (pin 4+9) | 0dB |  |  |  | 0.5V |
| 20dB |  |  |  | 5V |

Replace the 200kOhm resistor with a 20MOhm resistor, and repeat the same measurements for the higher gain settings:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Gain setting | MEDM readback | DAQ output | Measured with voltmeter on BNC output | nominal |
| PD1  (pin 1+6) | 40dB |  |  |  | 0.5V |
| 60dB |  |  |  | 5V |
| PD2  (pin 2+7) | 40dB |  |  |  | 0.5V |
| 60dB |  |  |  | 500 |
| PD3  (pin 3+8) | 40dB |  |  |  | 0.5V |
| 60dB |  |  |  | 5V |
| PD4  (pin 4+9) | 40dB |  |  |  | 0.5V |
| 60dB |  |  |  | 5V |