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LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

-LIGO-

CALIFORNIA INSTITUTE OF TECHNOLOGY

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Pentek Generic Input Board Test Plan		
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1 Introduction

The tests described below are required to verify the correct operation of the Pentek Generic Interface Board (schematic # D020432 Rev.A, PCB # D020432 Rev.A).

2 Test Equipment

SR785 Dynamic Signal Analyzer
Power supplies

3 Tests

3.1 Input Power

Connect +/- 15V and GND to the testpoints T11, T12, and T10 respectively.

Supply	Nominal Current	Actual	Pass/Fail
+15	200 mA +/- 10mA		
-15 V	200 mA +/- 10mA		

3.2 800Hz Butterworth stages

Perform all tests with an SR785 whose outputs are connected to the appropriate front panel LEMO connector, and whose inputs are connected to the appropriate test point on the board. With both of the first two pole-zero stages bypassed, the transfer function should be 2 Butterworth lowpass filters at 800Hz. Set up the SR785 with a source level of 0.1V, and a frequency range of 10Hz-10KHz. The curve should be flat out to 800 Hz, where it should have dropped by 6dB +/- 1dB, and have a phase of –8deg +/- 1deg.

CHANNEL/TESTPOINT	GAIN @ 800Hz	PHASE @ 800Hz
CH1 / T1	dB	
CH2 / T2	dB	
CH3 / T3	dB	
CH4 / T4	dB	
CH5 / T5	dB	
CH6 / T6	dB	
CH7 / T7	dB	
CH8 / T8	dB	

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3.3   1st Stage Filter

Position jumper J1 to pins 2-3 and jumper J2 to pins 1-2 so that the first filter stage is enabled and the
second stage is bypassed. Run a sweep on the analyzer, and make note of the Gain/Phase at the frequencies
described in the chart. Repeat this procedure for the other seven channels. All values should be nominal,
+/- 1dB and +/- 2deg

Channel / TP	Gain/Phase at 15Hz (nom 3dB / 36deg)	Gain/Phase at 150Hz (nom 17dB / 3deg)	Gain/Phase at 800Hz (nom 13dB / 157deg)	Gain/Phase at 1500Hz (nom −6.5dB / 48deg)
CH1 / T1	dB /	dB /	dB /	dB /
CH2 / T2	dB /	dB /	dB /	dB /
CH3 / T3	dB /	dB /	dB /	dB /
CH4 / T4	dB /	dB /	dB /	dB /
CH5 / T5	dB /	dB /	dB /	dB /
CH6 / T6	dB /	dB /	dB /	dB /
CH7 / T7	dB /	dB /	dB /	dB /
CH8 / T8	dB /	dB /	dB /	dB /

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2nd Stage Filter

Position jumper J1 to pins 1-2 and jumper J2 to pins 2-3 so that the first filter stage is bypassed and the
second stage is enabled. Run a sweep on the analyzer, and make note of the Gain/Phase at the frequencies
described in the chart. Repeat this procedure for the other seven channels. All values should be nominal,
+/- 1dB and +/- 2deg.

Channel / TP	Gain/Phase at 15Hz (nom 3dB / 36deg)	Gain/Phase at 150Hz (nom 17dB / 3deg)	Gain/Phase at 800Hz (nom 13dB / 157deg)	Gain/Phase at 1500Hz (nom –6.5dB / 48deg)
CH1 / T1	dB /	dB /	dB /	dB /
CH2 / T2	dB /	dB /	dB /	dB /
CH3 / T3	dB /	dB /	dB /	dB /
CH4 / T4	dB /	dB /	dB /	dB /
CH5 / T5	dB /	dB /	dB /	dB /
CH6 / T6	dB /	dB /	dB /	dB /
CH7 / T7	dB /	dB /	dB /	dB /
CH8 / T8	dB /	dB /	dB /	dB /