Bioamp Functional Test Procedure

2019-06-13

Google

Doc #:
Revision: 01

Table of Contents

Document History

Rev	History/Change Description	Originator(s)	Approver	Date
01	Initial Draft	Zoey Zweber		

Scope

This test demonstrates bioamp output per given input in the form of square waves. A signal is generated from the bioamp output test fixture, acting as an input to the bioamp which then reports output. The output is analyzed to ensure that the amplitude and frequency of the detected output fall within the tolerance of the expected values. The test will identify if any of the 32 available channels are not functional or accurate.

Safety Controls & Requirements

- Test must be conducted in an environment that is free from external disturbances such as vibration, as this could alter the device connection and consequently test results.
- Environment must be clear of all non-essential electronic devices.

1.0 Functional Test

1.1 Test Equipment

1	Device Under Test - Bioamp (Flashed with firmware)

2	Additional test equipment

Philo provided laptop containing : 1x USB A interface; io-test script installed, Logs folder mapped

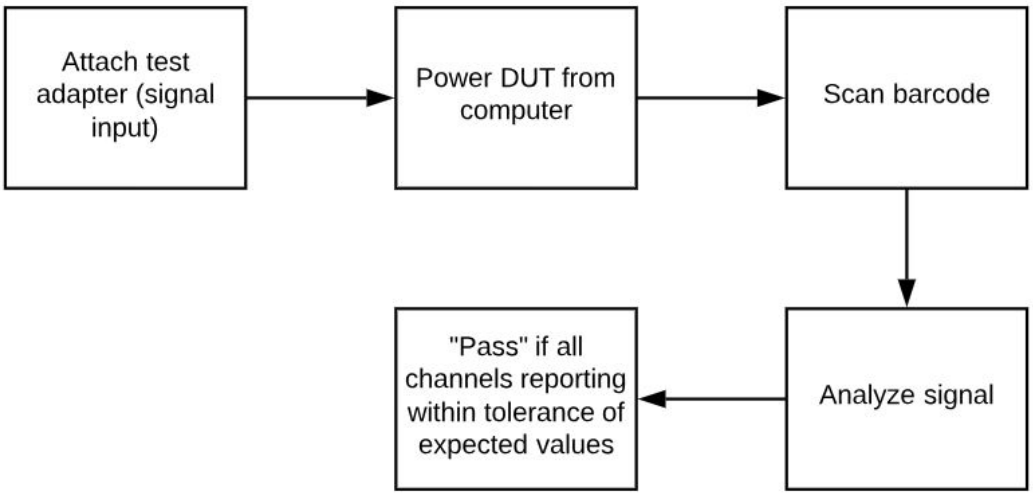
1x USB A/B cables

1x Barcode Scanner

Bioamp Output test fixture

1.2 Overview

Test	Description
Bioamp Functionality Test	Measures the output signal accuracy, differential offset, and frequency response of all 32 channels per given input from test fixture

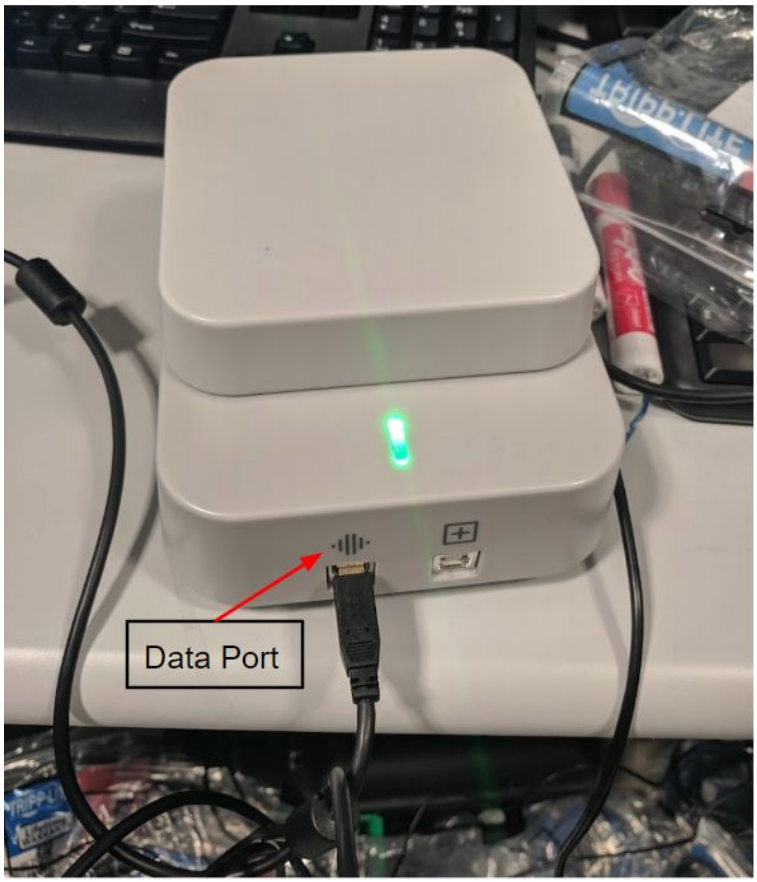


1.3 Criteria

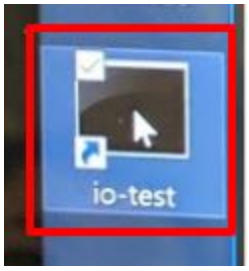
Criteria	Description
Accuracy of signal reproduction	Input signals in the range of ±0.5 mV, varying at a rate to 12 mV/s, shall be reproduced on the output with an error of ≤ ±20 % of the nominal value of the output or ±10 µV, whichever is greater
Input dynamic range and differential offset voltage	With a d.c. offset voltage in the range of ±300 mV and differential input signal voltages of ±0.5 mV that vary at rates up to 12 mV/s, when applied to any lead wire, the time-varying output signal amplitude shall not change by more than ±10 % over the specified range of d.c. offset.
Frequency response	A frequency response (bandwidth) of at least 0.5 Hz to 50 Hz when tested with sinusoidal input signals. The output at 0.5 Hz and 50 Hz shall be within 71 % to 110 % of the output obtained with a 5 Hz sine wave input signal

1.4 Test Setup & Procedure

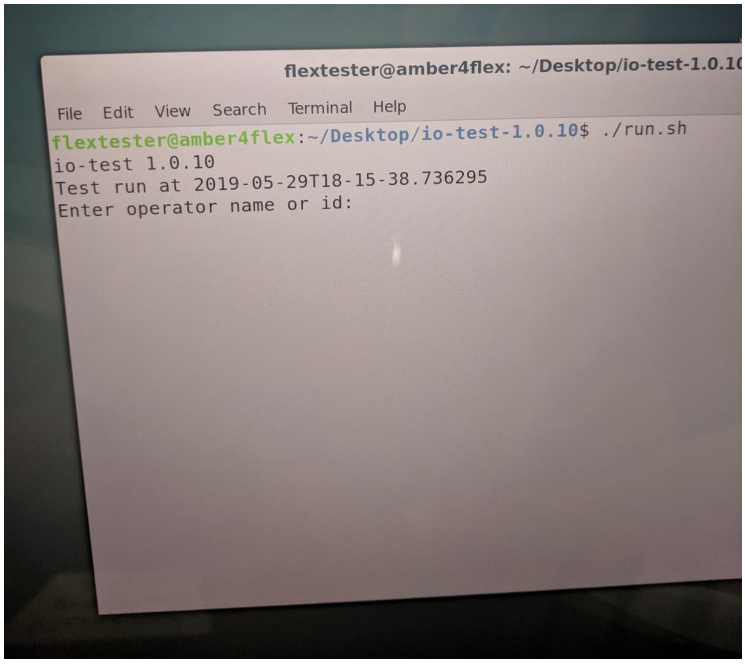
Step	Action
1	Attach test adapter. Press down firmly to ensure it is fully seated on bioamp. **Note**- test adapter will have different labeling than unit pictured
	
2	Connect and power Bioamp to Laptop - Connect USB cable (B side) to Data port on Bioamp and USB (A side) to computer. This will power up the PCB (green LED illuminated) **Note**- only plug in one device at a time



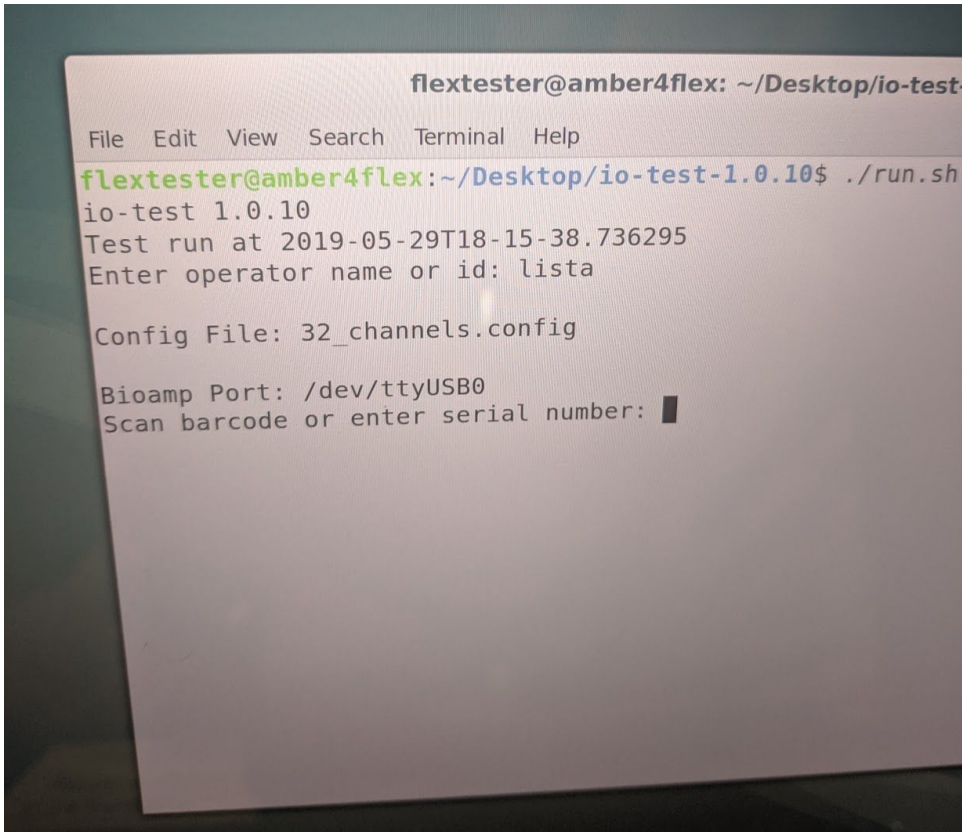
3	Double click “io-test” icon from desktop to open test script



4	Enter operator name or ID as prompted

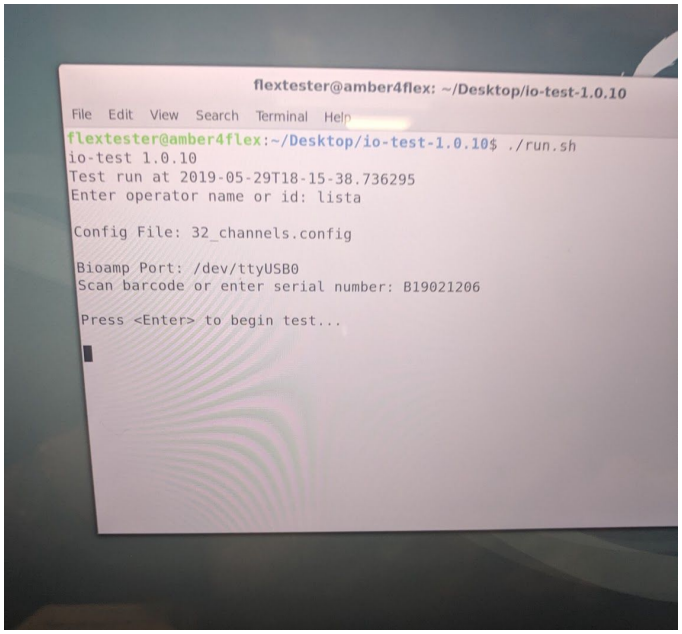


5	Scan barcode as prompted on screen. Barcode is located on label on bottom side of bioamp

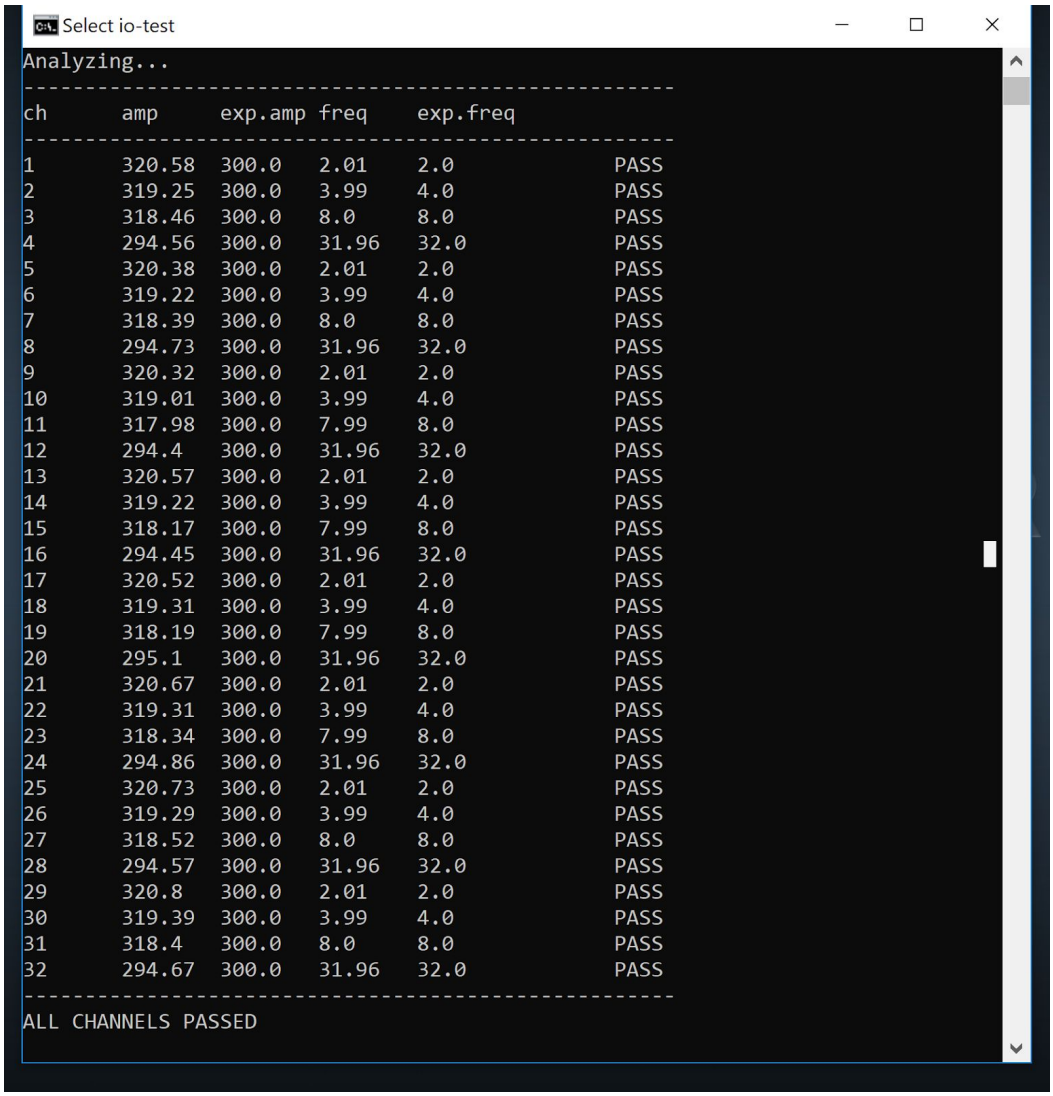


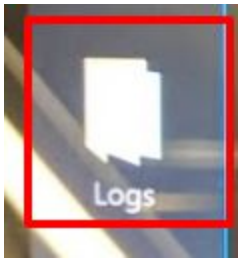
6	Return bioamp to upright position on table. Press down on test adapter to ensure solid connection to bioamp.

7	Hit “Enter” to initiate test. **Note**- Do not disturb unit while test is running



8	Test results will populate as pass or fail for each of the 32 channels. Test logs are also copied to “Logs” folder located on desktop





9	Close the test script window. Unplug DUT. **Note**- you must close the script window or click “Relaunch” in between each device tested

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1.5 Preventative Maintenance

Type	Action
Daily	
Before Batch Testing	
Bi-Monthly	

1.6 Troubleshooting

#	Symptom	Likely Cause
1	“Access denied” error shows when opening io-test script	Script cannot be run while Visualizer is open. Close visualizer and attempt to open test script again.
2	Test script crashes before it finishes running	Known software bug, unplug and replug the DUT and then rerun test
3	Very few channels show results and all fail	Adapter is likely not completely seated on the bioamp
4	Test does not display results for all 32 channels	Issue with USB connection. Recommend unplug and replug in

Questions/Comments

Provide contact info for any questions pertaining to this document.