Manual for PMT Scanning

Taking Data

1) Before opening the darkbox, make sure the high voltage is OFF. NOTE: If high voltage is ON, after turning the switch to the off position, WAIT for the high voltage to fully turn off (should take a few seconds).
2) Align the PMT with the LED. DO NOT CHANGE THE VERTICAL POSITION OF THE PLATFORM THE PMT RESTS ON. Make sure that the PMT will not rotate during the test.
3) Plug the high voltage cable into the port on the outside of the darkbox.
4) Turn on the step motor. Press the green button.
5) Close the darkbox and place the black blanket over it.
6) Turn on the high voltage, reset the counter, start the data run.
7) Record the run number, the dimensions of the matrix (the number of data points in each row and in each column), and the high voltage used.
8) When data run is finished, turn off high voltage.

Analyzing Data

1) Open terminal
2) Type in the username: su and password: linux! and hit enter
3) Type . /home/DAQ/root/bin/thisroot.sh and press enter
4) Type cd ScanningAnalysis/ and press enter
5) Type ../coda2ascii /home/DAQ/coda/test_(run#).dat > /home/DAQ/(run#).txt and press enter
6) Type root and press enter
7) Type .x ConvertADCFiles.C("../(run#).txt", "(run#).txt", 3) and press enter
   a. Last parameter is the channel number the output signal from the PMT goes to in the ADC. Make sure that the output signal cable goes into channel 3 on ADC.
8) Type .x ReadScanning.C("(run#).txt", "(run#).root", 1, 10, 10, 1000) and press enter
   a. Numbers in the Parameters List
      i. 1: gain
      ii. 10: size of matrix; number of data points per row and per column; make sure to change these two parameters to the # of data points taken per row
      iii. 1000: number of events per data point
9) Exit root (command: .q and press enter); and open root again if needed
10) Go to home folder, then to scanning analysis and click on (run#).png to open image.
11) Save to a flashdrive. DO NOT SEND IMAGE BY E-MAIL. THAT WILL NOT WORK ON THE COMPUTER IN THE ROOM.

NOTE: All words, phrases, etc. in BLUE are commands for terminal and root.