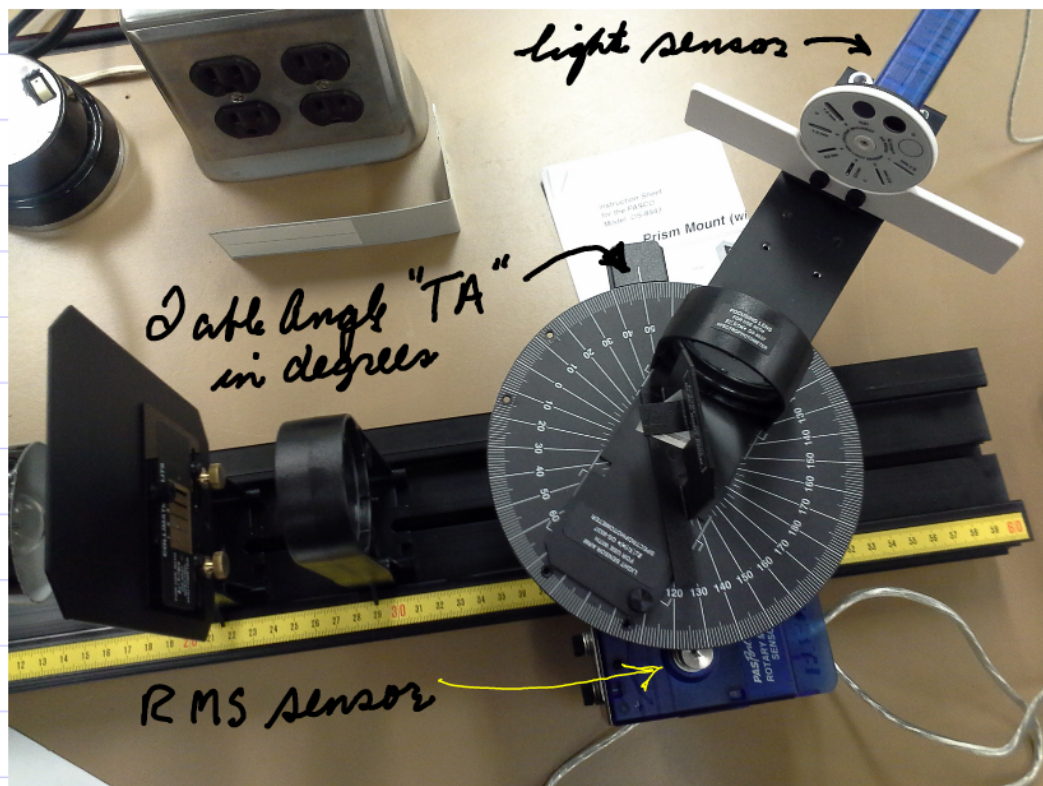


2020 Black Body Analysis

Step # 1 is to use the data in the file `table.angle.2020.txt` file to determine how the rotary motion sensor's (RMS's) angle in radians relates to the real angle the refracted light travels through or over after leaving the prism.

This file was generated on the GLX by moving the arm (on which the light sensor is mounted) to the physical stop. That table angle (TA) is 75.0° as determined by using the scale drawn in white on the table. A photo is below showing the table at $TA = 50.0^\circ$.



The file has the columns labeled and then the values. It is a three column table with col # 2 showing RMS values [radians], col # 3 has TA values [degrees]

This file will be available for download from the 275 page on hogan53.net. It can be imported into Inqura using the instructions on the next page.

After saving the file to your linux vm/machine, open xmgrace. Usually the downloaded file is put into the /home/joe/Downloads directory. In xmgrace click on Data, Import, Ascii

Use the Read sets dialog that opens to navigate to the Downloads directory. Then change the filter to show *.txt as xmgrace looks for *.dat by default. (Delete dat, type in txt, press enter.) The Files section will now show the downloaded file: table.angle.2020.txt. Select it. More defaults must be changed:

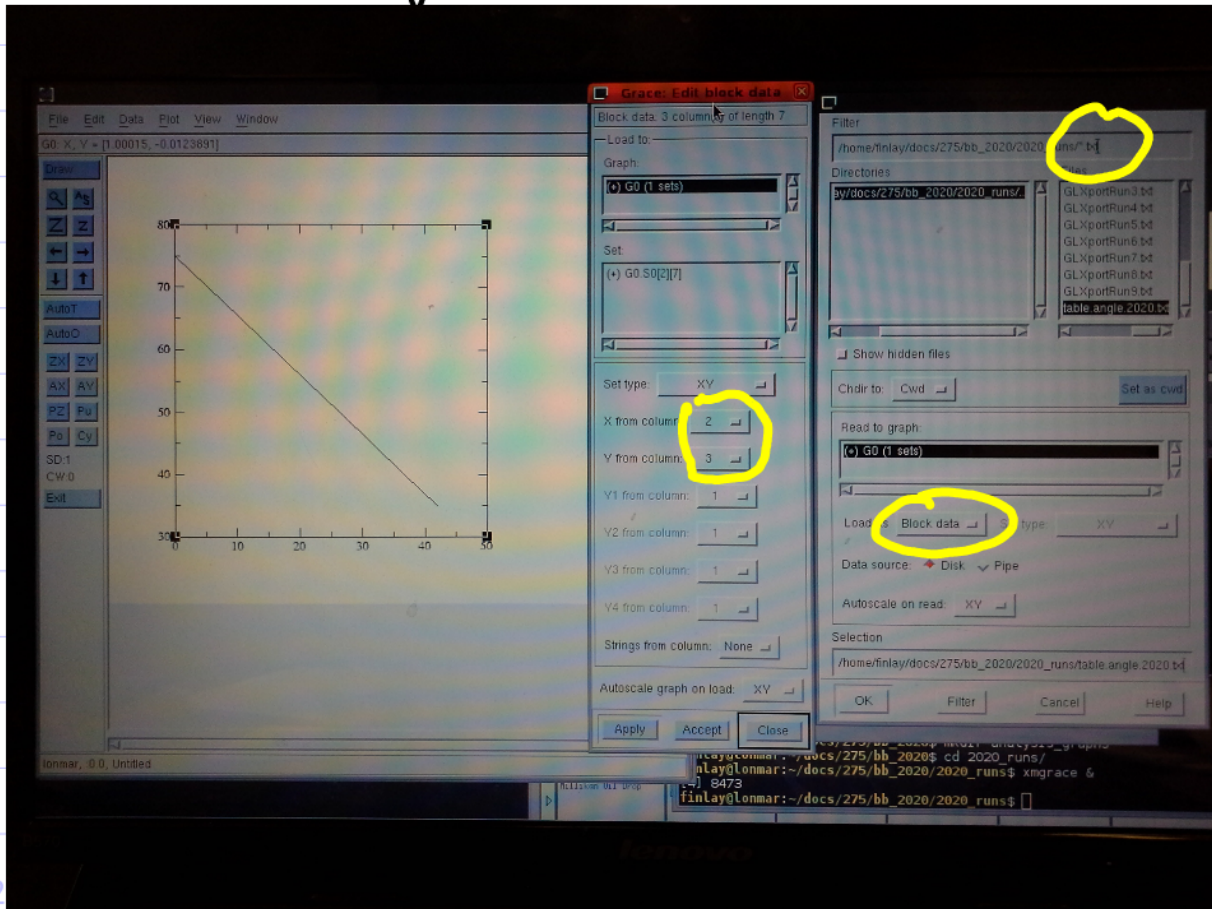
Load as Single Set → change to: Block data

Click ok: The Edit block data dialog opens. Change

X from column 1 → to 2

Y from column 1 → to 3

Click Accept. The photo below shows these changes but the directory locations won't match.



At this point, go ahead and fit the data, label the axis, put the fit equation + title and units on the plot as usual. You will now have the equation that converts RMS angle to Table Angle

Save this graph as RMS_to_TA_angle-2020.gr.