PMT Non-Linearity Pre-Tests Checklist

PMT Serial:..... Name:.....(Initials)

Start date:..... (YYYY-MM-DD) Time:.....(hh-mm)

Base-stages:..... High Voltage:.....V Operational Time:..... h

Notes:.....

01. Stop the data collection script ☐
02. Turn off all the power supplies **(HV, DCsupply, Photodiode Temp., Photodiode Amp.)** ☐
03. Note down the operational time for the previous PMT **(on paper and spreadsheet)** ☐
04. Swap the PMT ☐
05. Connect the **unitary gain base** to the new PMT **with HV cable** ☐
06. Remove the PMT cap and set the distance between PMT and filter wheel to **14cm** ☐
07. Cover the PMT and filter wheel with the cardboard dark box ☐
08. Lock the metal dark box and place the key on the designated location ☐
09. Set HV=**280V**, DC-ch3=**2V (Constant LED)**, Filter-Position=**9** ☐
10. Record the currents using the Picoammeter **(Wait until you read 0.01nA on the meter)** ☐

For 4 stage

	Constant LED Voltage (V)	Cathode Current (nA)	
-v7			7 nA
-v9			9 nA
-v12			12 nA

For 3 stage

	Constant LED Voltage (V)	Cathode Current (nA)	
-v12			12 nA
-v15			15 nA
-v18			18 nA

11. Unplug the Picoammeter from the power outlet (to reduce AC noise) ☐
12. Turn off the HV power supply ☐
13. Connect **3/4 stage base** to the new PMT **with HV cable** ☐
14. Adjust the distance between PMT and Filter wheel to be **14cm** ☐
15. Cover the PMT and filter wheel with the cardboard dark box ☐
16. Lock the dark box and place the key on the designated location ☐
17. Turn on High Voltage Power Supply **(4-Stage base: -600V, 3-stage base: -800V)** ☐
18. Turn on 3 Channel DC Power supply **[I/O]** ☐
19. Turn on the photodiode temperature controller ☐
20. Plug in the photodiode amplifier barrel connector ☐
21. Run the "`record.sh`" script ☐
22. Wait for the first run to complete ☐
23. Adjust the High Voltage if the max anode current is not within the **8-10uA** range. Input the new high voltage into the data collection script. **(HV_{min}=-500V, Hv_{max}=-900V)** ☐

Note: If anode current cannot be set to the required range by adjusting HV, change the base